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Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

No. 181

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MAJOR QUEENSLAND CITY ADOPTS ANTINUCLEAR STAND

Action in Ipswich

Brisbane THE COURIER-MAIL in English 17 Dec 83 p 20

[Text]

IPSWICH last night became Queensland's first nuclear-free zone city, possibly thwarting any plans for a \$1000 million uranium enrichment plant west of Brisbane.

The decision could have a serious impact on State Government plans to establish a uranium enrichment plant in south-east Queensland because major road and rail links pass through the city of 75,000.

The establishment of such a plant has the open support and encouragement of the Premier, Mr Bjelke-Petersen, and could place him at loggerheads with the council.

The declaration has the full backing of the Ipswich Trades and Labor Council and all trade unions were asked last night to recognise the declaration and refuse to handle any uranium being transported through the city.

The main western railway line to Melbourne and the inland interstate highway to Sydney pass through Ipswich.

The nuclear-free-zone proposal was part of a major submission to the Ipswich City Council by the Finance Committee chairman, Alderman Paul Tully.

He hopes the decision will set a precedent for Queensland's 134 local authorities.

He said a recent statement by the Deputy Premier and Member for Ipswich, Dr Edwards, that he would welcome a uranium enrichment plant in the area had angered council members and caused alarm in the local community.

The Federal Government has given approval for plans by the Uranium Enrichment Group of Australia — made up of CSR Ltd, BHP, the Western Mining Corporation and Peko Wallsend — to build a plant. It would have 50 percent ownership.

The group announced on October 9 that the Brisbane region had been selected for detailed site studies for an enrichment industry.

The decision on whether to build a plant is still two years away.

The areas under review are reported to be Caboolture and Beaudesert but no definite site has actually been named.

The plan has been rejected by the Ipswich Mayor, Ald. Freeman, and Caboolture Shire chairman, Councillor Barr.

"We will not stand by and allow a nuclear plant to be established in our region," Alderman Tully said.

The Local Government Act empowers all councils to make decisions relating to the health, welfare and safety of residents.

Pine Rivers Shire Position

Brisbane THE COURIER-MAIL in English 17 Dec 82 p 20

[Text]

RESIDENTS of the Pine Rivers Shire on the northern outskirts of Brisbane want nothing to do with a uranium enrichment plant.

Their concern led the Pine Rivers Shire Council at its last meeting to pass a resolution declaring the shire a nuclear-free zone.

Council chairman, Councillor Allan Hughes, said yesterday proposals that the plant be established at Caboolture, which was "just up the road" had alarmed residents.

He said the council would write to the State Minister for Mines, Mr Gibbs, expressing strong opposition to a proposal that a uranium plant be built in Queensland, and especially in the Caboolture area.

CSO: 5100/7516

GOVERNMENT MOVES AHEAD WITH SYNROC NUCLEAR WASTE PLANT

Canberra THE AUSTRALIAN in English 31 Dec 82 p 9

[Article by Jane Ford]

[Text]

"NUCLEAR waste problem solved", "N-waste made safe" proclaimed the headlines in July, 1978 when Synroc, the Australian developed nuclear waste disposal method, was unveiled.

Its inventor Professor Ted Ringwood, director of the Australian National University's Research School of Earth Sciences, claimed the synthetic rock was far superior to borosilicate glass - the method most favored by Europe and the United States - and could safely immobilise nuclear material for tens of thousands of years.

Sceptics, particularly overseas, challenged those claims.

But now, four years later, many are having to seriously reconsider Synroc as an alternative waste disposal method.

Tests here and overseas have shown that the synthetic rock, which ~~actually incorporates~~ incorporates the waste into its crystalline structure rather than just containing it, is much more stable than borosilicate glass, particularly at high temperatures and pressures.

It can withstand temperatures of well over 300C, unlike glass which becomes susceptible to leaching by ground-water above 100C. For the key fission products of cesium and strontium it has been found to be 1000 times more resistant to leaching than glass and for the more long-lived elements, plutonium and americium, 100 times more resistant.

This means Synroc can be buried deep underground, far away from geological disturbances, unlike glass which cannot withstand the high temperatures at these depths.

Since 1980 the Australian Government has been strongly backing the scaling up of the process. It has just decided on a builder for a \$27 million commercial demonstration plant to be built at the Atomic Energy Commission's headquarters at Lucas Heights, Sydney, which will be a proving ground for the engineering feasibility of a full-scale plant and determine its commercial viability.

It will be the same size as a water condensation plant recently opened in France and about a third the size of one under construction in Britain.

The plant, which will use simulated waste made from non-radioactive chemicals most identical to nuclear waste, should be completed within two years. Once operating it will take about a year to prove whether the method is viable.

Design and construction of the plant follows years of work by Professor Ringwood and his team on perfecting both the mineral composition of Synroc and the best method of incorporating waste into it.

The rock now consists of three naturally occurring minerals - zirconite, perovskite and hollandite. These are made from oxides of the same elements - titanium,

zirconium, calcium, barium and aluminium.

Deep burial is one of Synroc's major advantages over borosilicate glass as it means it can be deposited up to 4km underground in areas of impermeable rock, well below the regions normally affected by groundwater.

Professor Ringwood estimates that one such drill hole, 1m in diameter could hold all the nuclear waste produced in Britain in four years.

Borosilicate glass cannot withstand the high temperatures underground at this depth and instead many European countries plan to dispose of the glass in large mined stores only 500m to 700m below

the surface. These could be affected by geological disturbances and would be much more difficult to seal than drill holes.

Since the original development of Synroc, Professor Ringwood has developed a number of different forms. One, Synroc D, is specifically suitable for defence wastes and has been investigated by the US Government.

The most recent is Synroc F, which is particularly suitable for handling untreated spent fuel from nuclear reactors, which has not been reprocessed to remove the plutonium and uranium.

Professor Ringwood believes this development has major implications for nuclear non-proliferation.

Separation of plutonium and development of the "plutonium economy" is a major concern among many anti-nuclear activists because of the fear of diversion to produce nuclear weapons.

"Given the current unstable world political situation and the difficulties of regulating and controlling the distribution of fissile materials, disposal of spent fuel without reprocessing has some major attractions," says Professor Ringwood.

He says a moratorium on reprocessing for two to three decades would not seriously deplete world uranium reserves but could provide a breathing space to develop new technologies to stop the diversion of plutonium into weapons manufacture.

Overall, Professor Ringwood is optimistic about the future of Synroc. He says the nuclear industry is going to have to come to terms with the realities of waste disposal and accept that waste management strategies will ultimately be determined by the public, not the experts.

This means that future disposal systems must be easily understood and readily evaluated by the layman as well as demonstratively safe.

YEELIRRIE URANIUM PROJECT SET TO GET UNDER WAY NEXT YEAR

WMC SETS THE JADE IN PACT WITH FRANCE AND U.S.

Article by Michael Willis

Page 1

Western Mining Corporation expects to be able to give the go-ahead to the Yeelirrie uranium project early in the next financial year.

The company has been negotiating with the French Government-owned nuclear organisation, Commissariat à l'Energie Atomique, to take yellowcake from Yeelirrie and equity in the project, and negotiations with the other potential European buyers and partners are making good progress.

WMC is confident it has overcome the setback last May of Esso pulling out of development plans and the Yeelirrie partnership, leaving WMC responsible for marketing 90 per cent of the planned 2500 tonnes annual output. The other 10 per cent is the responsibility of the Frenchesell.

The stigma of such an organisation as Esso describing Yeelirrie as uneconomic still rankles, but senior WMC executives believe that European organisations are now confident that Yeelirrie can produce a long-term, stable supply.

Production from Yeelirrie, 530 kilometres northwest of Kalbarrie, is planned from 1986. Ship-

ment are planned no later than early 1987 to meet European demand in the late 1980s, although there might be a slight delay.

Unlike power utilities in the United States, the Europeans, particularly the French, are not worried by the Australian Government's policy of introducing a floor price on uranium export contracts.

The European buyers are not constrained by government regulations, such as those in the US, which demand that power utilities secure the cheapest possible source of feed.

The floor price is around \$US30 a pound against the spot market price now of \$US20 a pound — up from \$17 in the past few months.

Australian uranium industry analysts say the spot market is being supplied by US power utilities selling uranium obtained on long-term contract to uranium suppliers which have to meet short-term delivery schedules.

The Europeans, the analysts say, are more concerned with security of supply than price, so the Australian floor price becomes irrelevant.

WMC agrees with this view but other uranium companies, however, are complaining about Canberra's policy.

The progress on Yeelirrie's corporate structure suggests that the project will be the next uranium development in Australia.

Also, a study into radiation levels at the Kalgoorlie pilot plant which was testing the metallurgical process for extracting the uranium oxide from the Yeelirrie ore have given the process a clean bill of health.

The study, under the terms of WA legislation covering radiation, found that people working in the plant come nowhere near the exposure limits for members of the general public.

Maximum allowable doses of whole body radiation are 5000 milliRems (mRems) for radiation workers and 500 mRems for the general public. Lung exposure maximums are 15,000 mRems for radiation workers and 1500 for the public.

The maximum body dose at the Kalgoorlie plant was 4.5 mRems over four weeks for maintenance staff and a lung dose of 22 mRems for a stockpile operator.

The maximum body dose at the mine site was 36.5 mRems for plant operators and 88.8 mRems lung dose for surveyors, drillers and ore graders.

AUSTRALIA

RAIL UNION WILL NOT HAUL MONAZITE ON ANTINUCLEAR GROUNDS

Perth THE WEST AUSTRALIAN in English 31 Dec 82 p 3

[Article by Paul McGeough]

[Text] The Australian Railways Union yesterday told Westrail that its members would no longer handle monazite railed regularly from Geraldton to Fremantle.

The WA secretary of the union, Mr Jim Hanley, said that the union's ban was ~~therefor~~ present in all WA monazite--because of insufficient checks on its use in the nuclear cycle overseas, mainly in Germany and France.

It was a separate issue to question about the health and safety of workers exposed to radiation.

Mr Hanley was not sure if the ban would result in any of its member being put out of work.

Westrail secretary Trevor Tobin warned last night that jobs were being threatened.

Shifting the monazite--worth million of dollars--was an important and profitable section of railway business, he said.

response

Mr Tobin said he was considering today how to respond to the ban.

Mr Tobin said the union had indicated that this was a political move dictated by its national organisation. "It is a very sad state of affairs when they succumb to outsiders like that," he said.

Mr Hanley said he was unsure of the implications of the ban for Allied Eneabba.

[Allied Eneabba rails its mineral sands from near Eneabba to a separation plant at Narngulu, near Geraldton. It is then packed in bags and wrapped in plastic before being put in transport containers.

It is railed to Fremantle for export because there are no container-handling facilities at Geraldton and the harbour cannot handle big ships.]

The managing director of Allied Eneabba Ltd, Mr A. Tough, said last night: "If the railways don't want 10,000 tonnes of business each year it's one reason why this country is going down.

"All the ARU is doing is putting workers out of jobs."

Mr Tough said that the ban was not likely to cause the company any embarrassment in meeting export orders.

Referring to the ARU's statement yesterday that the decision had been implemented after a meeting of workers at Geraldton, Mr Tough said: "My guess is that this has got nothing to do with mass meetings of the workers or we would have heard about it."

CSO: 5100/7516

PEOPLE'S REPUBLIC OF CHINA

PRC DENIES NUCLEAR COOPERATION WITH PAKISTAN

OW261232 Hong Kong AFP in English 1220 GMT 26 Feb 83

Text: Beijing, Feb. 26 (AFP) -- China today again denied it was cooperating with Pakistan in the nuclear field. Rejecting an assertion by U.S. Assistant Under Secretary of State for Asian Affairs Howard B. Schaffer that there was "a nuclear relationship" between Beijing and Islamabad, a Chinese Foreign Ministry spokesman said: "There is no such thing."

Mr. Schaffer's remarks, at a public hearing of the House of Representatives' Foreign Affairs Committee in Washington, marked the first official U.S. comment on the alleged nuclear cooperation.

The Foreign Ministry stressed that it had already denied last month press reports in Washington, quoting U.S. intelligence sources as saying that China had provided Pakistan with information on the manufacture of an atomic bomb.

State Department officials said the U.S. Government would refuse to supply nuclear technology to any country which did not sign the non-proliferation treaty. They also said that U.S. Secretary of State George Shultz had sought such an agreement with the Chinese leadership when he visited Beijing early this month but that his request was turned down.

SO: 5100/44

GERMAN DEMOCRATIC REPUBLIC

LAW ON PHYSICAL PROTECTION OF NUCLEAR MATERIALS PUBLISHED

East Berlin GESETZBLATT DER DEUTSCHEN DEMOKRATISCHEN REPUBLIK in German
Part I No 21, 1 Jun 82 pp 410-412

[Official text of "Order dated 7 April 1982 on the Physical Protection of Nuclear Materials and Nuclear Facilities--APS," effective 1 July 1982, signed by Prof Sitzlack, MD, state secretary, president, State Office for Nuclear Safety and Radiation Protection]

[Text] The following is hereby ordered for the physical protection of nuclear material and nuclear installations in agreement with the directors of the appropriate central government agencies:

Article 1: Scope

(1) This regulation applies to the following:

Government agencies and economy-managing agencies,

Combines, enterprises, and installations (hereafter called enterprises),

Which

Handle nuclear material,

Plan or erect facilities and rooms for handling nuclear material,

Plan, erect, or operate nuclear facilities and work out the pertinent technologies.

2) In addition to that, the directives issued by the president of the State Office for Nuclear Safety and Radiation Protection in agreement with the directors of the appropriate central government agencies are valid for the uniform application, implementation, and supervision of physical protection of nuclear material and nuclear facilities (hereafter called physical protection).

3) This regulation applies to nuclear material of the following kind:

Plutonium with a mass of 15 g, except for plutonium with an isotope concentration of more than 50 percent plutonium-238;

Uranium-233 with a mass of more than 15 g;

Uranium-235--uranium enriched to 20 percent uranium-235 or more, with a uranium-235 mass greater than 15 g,

Uranium enriched to 10 percent uranium-235 or more but less than 20 percent with a uranium-235 mass of more than 1 kg,

Uranium, enriched above the natural value but less than 10 percent with a uranium-235 mass of 10 kg or more;

Natural uranium with a mass of 500 kg or more, except for uranium-containing materials in mining or ore processing as well as ore residues;

Depleted uranium with a mass of 1,000 kg or more;

Thorium with a mass of 1,000 kg or more;

Nuclear material in molded parts (fuel elements, fuel rods, cassettes, fuel panels or pellets with identification numbers).

Material is categorized in the appendix to this regulation.

(4) This regulation applies to the following nuclear facilities:

Nuclear reactor plants,

Power plants,

Subcritical systems,

Installations for the procurement and production of nuclear fuels;

Installations for the preparation and processing of nuclear fuels;

Installations for the reprocessing of irradiated nuclear fuels;

Installations for the storage of nonirradiated and irradiated nuclear fuels

and installations for brief storage of such substances during transit;

Central facilities for the collection, processing, and final storage of radioactive waste.

Article 1: Definitions

This regulation provides for the following meanings:

1. Physical Protection

Means, and methods which are drafted and carried out to prevent criminal attacks and unauthorized actions

against nuclear material and nuclear facilities, recognizing them at the right time and preventing them, as well as recovering lost nuclear material.

2. Handling Nuclear Material:

Acquisition, importing and exporting, transfer, and transport via public transportation; handling (extraction, preparation, production, further processing, use, storage, in-house transport, removal, and any other utilization) involving nuclear material.

3. Nuclear Material Transportation:

Shipment of nuclear material with a carrier on public transportation routes including transloading and intermediate storage connected with shipment; nuclear material transport begins upon leaving the plant compound of the sender and it ends upon arrival at the plant compound of the recipient.

4. In-House Nuclear Material Transport:

Transport of nuclear material in enterprise compound.

5. International Nuclear Material Transport:

Transport of a shipment of nuclear material with a carrier which is to go beyond the sovereign territory of the state from which the shipment comes, starting with departure from a facility of the sender in that state and ending with arrival at a facility of the recipient in the state for which it is ultimately intended.

6. Safety Project:

Project for structural engineering and safety-engineering measures aimed at physical protection.

7. Safety Concept:

Concept on all planned personnel, organizational, structural-engineering and safety-engineering measures and methods for physical protection.

8. Transportation activity planned:

Plan of measures for the physical protection of nuclear material shipments.

Article 3: Basic Principles and Objectives

1) Physical protection within the meaning of this regulation contains the complete and proper application and cooperation of personnel, organizational, structural-engineering and safety-engineering measures, means, and methods (hereafter called safety measures) and must be guaranteed at all times.

(2) Safety measures are to be so coordinated that criminal attacks and unauthorized action against nuclear material and nuclear facilities will be effectively prevented and that they will be recognized at the right time and can be prevented.

(3) Physical protection must be included in damage protection planning and must be considered during the drafting of operational documents in keeping with legal regulations.²

(4) Reports and documentation for physical protection must be handled confidentially.

Article 4: Responsibility

(1) The directors of government and economy-managing agencies and of enterprises, which are legal entities or asset owners of nuclear material or nuclear facilities, are responsible for guaranteeing physical protection.

(2) The directors must:

Make sure that the safety projects, safety concepts, and transportation activity plans according to Article 5, Paragraph 3, will be worked out, that safety measures will be implemented, that prerequisites will be created for the actual entry into force of enterprise regulations, and for carrying out inspections;

Assign a deputy for physical protection (hereafter called deputy) and specify his rights and duties, considering the fundamental requirements according to Paragraph 3; the deputy's name must be communicated to the State Office for Nuclear Safety and Radiation Protection;

Involve the deputy in the planning and preparation of new work projects concerning the handling of nuclear material as well as the operation of nuclear facilities and detach him to attend advanced training courses given by the State Office for Nuclear Safety and Radiation Protection;

See to it that official documented familiarization courses on physical protection are given at intervals of 6 months to staff members who have access to nuclear material and nuclear facilities.

(3) The directors must:

By direction of the director, supervise compliance with the physical protection safety measures resulting from this regulation and the directives according to Article 1, Paragraph 2, and the in-house regulations;

When observing shortcomings and related impairments of physical protection, in case of violations of this regulation and the directives according to Article 1, Paragraph 2, or in-house regulations, and in case of extraordinary events in the field of physical protection, demand that the appropriate leading staff members immediately correct the shortcomings or he must initiate the necessary measures;

Report to the State Office for Atomic Safety and Radiation Protection concerning requirements for supervisory activities and supply estimates, expert reports, and comments on problems dealing with his activity as deputy;

Annually submit a comprehensive estimate concerning compliance with and effectiveness of physical protection as well as preventive measures as a result of the analysis of extraordinary events in the field of physical protection to the enterprise manager for confirmation and, each time, forward it to the State Office for Atomic Safety and Radiation Protection by 31 March of the next year.

Article 5: Approval

(1) The planned and implemented safety measures for physical protection require the approval of the State Office for Atomic Safety and Radiation Protection.

(2) The State Office for Atomic Safety and Radiation Protection will issue approval in the context of the Radiation Protection Licensing Procedure³ if evidence has been supplied that the requirements for guaranteeing physical protection have been met according to this regulation, including the directives according to Article 1, Paragraph 2.

(3) Approval must be requested in writing by government agencies, economy-managing agencies, and enterprises along with the request for radiation protection license from the State Office for Atomic Safety and Radiation Protection. The following documents must be added to the application:

For nuclear facilities:

Safety concept for approval for the erection of a nuclear facility according to Article 5, Paragraph 1, of the Nuclear Facilities Licensing Regulation and safety concept for approval for operation of a nuclear facility according to Article 6, Paragraph 1, of the Nuclear Facilities Licensing Regulation;

For nuclear material outside nuclear facilities:

Safety concept for approval for investment projects according to Article 10, Paragraph 1, of the Radiation Protection Decree;

For nuclear material shipments:

Transportation activities planned for the issue of permits for shipment according to Article 30, Paragraph 1, of the ATRS (Regulation on the Transport of Radioactive Substances); if no permit is required for nuclear material shipment according to Article 30, Paragraph 1, ATRS, then the shipment activities planned must be submitted to the State Office for Atomic Safety and Radiation Protection for approval at least 20 working days prior to the start of the shipment.

Approval is issued in writing. It can be connected with special requirements and conditions can be specified. Approval can be withdrawn or annulled if circumstances that have led to its issue no longer obtain.

(5) Changes with respect to the data constituting the foundation of approval require confirmation by the State Office for Atomic Safety and Radiation Protection to the extent that they essentially influence physical protection. Confirmation becomes a part of the approval.

Article 6: Supervisory Agency

(1) The State Office for Atomic Safety and Radiation Protection is the appropriate supervisory agency for physical protection.

(2) The Physical Protection Inspectorate of the State Office for Atomic Safety and Radiation Protection is responsible for supervising physical protection.

Article 7: Measures in Case of Extraordinary Events

(1) Extraordinary events in the field of physical protection must immediately be reported to the State Office for Atomic Safety and Radiation Protection regardless of the duty to report to other government and economy-managing agencies. The guideline for response to extraordinary events⁴ must be used accordingly.

(2) For the investigation of extraordinary events in the field of physical protection with serious results, a special commission is established within the State Office for Atomic Safety and Radiation Protection; it consists of staff members from the appropriate central government agencies and their subordinate enterprises.

(3) The tasks, operating procedure, and makeup of the special commission will be specified by the president of the State Office for Atomic Safety and Radiation Protection in agreement with the directors of the appropriate central government agencies.

Article 8: Special Provisions

In justified cases, the president of the State Office for Atomic Safety and Radiation Protection may issue special provisions for the above points.

Article 9: Final and Transition Provisions

1. This regulation takes effect on 1 July 1982.

(1) For nuclear material already in transit, for nuclear installations in the planning, erection, or operation stage, as well as existing facilities and rooms for handling nuclear material it will be necessary, within 6 months after entry into force of this regulation, to apply for approval in accordance with the provisions of Article 5 to the State Office for Atomic Safety and Radiation Protection, attaching the required documents.

FOOTNOTES

1. These directives are directly forwarded to the particular government and economy-managing agencies and enterprises.
2. The following currently apply: Decree of 13 August 1981 on Damage Protection (GBL., I, No 27, p 329); Decree of 15 May 1981 on Disaster Protection (GBL., I, No 20, p 257).
3. The following currently apply: Decree of 26 November 1969 on Protection against the Damaging Effect of Ionizing Radiation--radiation protection decree--(GBL., II, No 99, p 627); Regulation of 12 April 1978 on the Shipment of Radioactive Substances--ATRS--(special reprint No 953 of GBL. ZEITSCHRIFT); Regulation of 21 June 1979 on the Issue of Radiation Protection License for Nuclear Facilities--Nuclear Facilities Licensing Regulation--(GBL. I, No 21, p 198).
4. The Guideline of 3 April 1974 on Response to Extraordinary Events is currently applicable (MITTEILUNGEN DES STAATLICHEN AMTES FÜR ATOMSICHERHEIT UND STRAHLENSCHUTZ [Communications of the State Office for Atomic Safety and Radiation Protection], No 3, 1974).

Appendix for the Above Regulation

Table: Categorization of Nuclear Material

Material	Form	Kategorisierung		
		I	II	III
Plutonium		m \geq 2 kg	2 kg $>$ m $>$ 500 g	500 g \geq m $>$ 15 gb)
Uran-233				
Uran-235	<ul style="list-style-type: none"> - Uran, angereichert auf 20 % Uran-235 oder mehr - Uran, angereichert auf 10 %, Uran-235 oder mehr, aber weniger als 20 % - Uran, angereichert über den natürlichen Wert, aber weniger als 10 %, Uran-235 	<ul style="list-style-type: none"> m \geq 5 kg - - 	<ul style="list-style-type: none"> 5 kg $>$ m $>$ 1 kg m \geq 10 kg - 	<ul style="list-style-type: none"> 1 kg \geq m $>$ 15 gb) 10 kg $>$ m $>$ 1 kgb) m \geq 10 kgb)
Natururan		-	-	m \geq 500 kgb, d)
angereichertes Uran		-	-	m \geq 1 000 kgb, d)
Thorium				

Key: 1--Category; 2--Uranium, enriched to 20% uranium-235 or more; 3--Uranium, enriched to 10 percent uranium-235 or more, but less than 20 percent; 4--Uranium, enriched above the natural value but less than 10 percent uranium-235; 5--Uranium-233; 6--Uranium-233 (c); 7--Natural uranium; 8--Depleted uranium; (a) All the plutonium, except for the plutonium with an isotope concentration of more than 80 percent plutonium-238; the categorization of plutonium-beryllium-neutron sources of unknown isotope composition is accomplished on the basis of the total plutonium mass of the neutron source; (b) If we fall below these boundary values, the nuclear material must be secured in accordance with the regulations applicable to handling radioactive substances, including protection against unauthorized access, and on the basis of the principles of order, safety, and secrecy; (c) The categorization is based on the isotope mass; (d) If the nuclear material has been irradiated, the safety measures according to II must be applied.

Nuclear material in molded parts (except for plutonium-beryllium-neutron sources), such as fuel elements, fuel rods, cassettes, fuel panels, or pellets with identification number, must at least be placed in category III.

If several of the above-mentioned materials are in transit together, categorization is accomplished during the approval procedure; the categorization of irradiated fuel cassettes from nuclear power plants is accomplished in the corresponding order.

8055

CSO: 2500/126

BRIEFS

UNDERGROUND RADIOACTIVE WASTE DUMPS--A report presents the progress in studies on safety of disposal of radioactive waste in deep-seated geological formations. Subsequently, the major hazards which may be expected when such deep-seated dumps are constructed in Poland in order to isolate high-, medium- and low-radioactivity waste from biosphere are discussed. The waste will be coming from nuclear power plants. In Poland, works connected with designing waste disposal sites are nowadays at the stage of analysis of concepts of surface dumping and underground burial of the waste. When the latter solution is chosen, further studies will be aimed at two tentatively accepted locations: one in layered Zechstein rock salt deposits in northern Poland and the other--in Archaic and Lower Paleozoic crystalline basement rocks in eastern Poland. In both case the rocks chosen as appropriate for construction of disposal sites are overlain by strongly water-saturated rock series, with hydraulic contacts between individual aquifers. Attention is paid to the necessity of careful surveying the hydrogeological conditions as the major prerequisite of safety in waste storage. Present knowledge of hydrogeological conditions impedes identification of major potential water hazards and related possibilities of migration of critical nucleids from the dump to surface. The major hazards may be connected with insufficient sealing in the construction and filling-up shafts and an excessive effect of the high-radioactivity waste dump on surrounding rock massif. The latter is mainly the case of waste storage in rock salt deposit. [excerpt] [Warsaw KWARTALNIK GEOLOGICZNY in Polish No 2, Apr-Jun 82 (p. 44-45)] [Full text will be published later]

BIOGRAPHIC DATA ON NUCLEBRAS PRESIDENT

Rio de Janeiro O GLOBO in Portuguese 3 Feb 83 p 23

[Text] Brasilia--Despite the fact that he has been an advisor to Minister Cesar Cals in the nuclear area since 1979, Engineer Dario Gomes has a background that brings him much closer to being a dam man. He began to work in the hydroelectric sector in 1955 when he held the position of technical director of the Amapa Electricity Company.

His appointment as president of the Brazilian Nuclear Corporation (NUCLEBRAS) will certainly cool the historic disputes within the energy sector between the dam men (charged with the construction of hydroelectric plants) and the intransigent defenders of nuclear plants. That dispute resulted in a permanent confrontation of figures about the costs of generating hydroelectric and nuclear energy, having as its principal stage the congressional investigating committee which investigated the nuclear program.

As a source in the Ministry of Mines and Energy observed, the Dario Gomes administration will create conditions for greater understanding between NUCLEBRAS and the Brazilian Electric Power Stations Corporation (ELETROBRAS), preventing the nuclear energy sector from "being a foreign body" within the electric energy generating program. The same source observes that Dario Gomes will conduct the nuclear program within the strict limits established by the government, avoiding any disproportion between the pace intended by ELETROBRAS for the installation of nuclear plants and the country's real needs for electric energy.

An example of disagreements between NUCLEBRAS and ELETROBRAS may be cited the intense behind-the-scenes dispute regarding requirements for the year 2000--the so-called Plan 2000. NUCLEBRAS intended to establish the timetable for the eight plants and set a number the installation of which could be begun by that year. Discussions dragged out for almost 1 year, until in the second half of 1982 the matter was closed with the decision to establish a timetable for only four nuclear plants.

Despite being an active adviser of Minister Cesar Cals, having coordinated all important matters in the energy area (except oil), Dario Gomes assumed a discreet position within the ministry. He rarely received the press, always alleging that he was dealing with matters to be urgently forwarded

to the minister. On assuming the position of office chief last year, replacing General Luciano Salgado Campos, he became more accessible to the press, but he never agreed to have his name quoted in reports although he never expressed an opinion or supplied information that was in conflict with the minister's position.

Dario Gomes was born in 1925 in Belem do Para. In 1955, he became technical director of the Amapa Electricity Company. From 1962 to 1966, he worked for Minas Gerais Electric Power Stations (CEMIG), occupying, among other positions, that of chief of the hydraulic projects division. In 1972 he was chief of the ELETROBRAS Hydroelectric Plant Coordination Group; in 1973, he occupied the position of technical director of the Northern Electric Power Stations Corporation (ELETRONORTE); and in 1977 returned to ELETROBRAS as adviser to the director of planning and engineering.

As adviser to Minister Cesar Cals since March 1979, he represented the ministry in the Coordinating Commission to Safeguard the Brazilian Nuclear Program (COPRON) before the Foreign Ministry and the National Security Council. And he was coordinator of the Plasma and Nuclear Fusion Task Force.

Minister's Personal Victory

Brasilia--The appointment of Dario Gomes as president of NUCLEBRAS was a victory for Minister Cesar Cals, whose name is always included in the list of "replaceables" in the Figueiredo cabinet. It is even a more significant victory if one takes into account that among the presidents of the state enterprises attached to the Ministry of Mines and Energy, Paulo Nogueira Batista was the one who had the most difficult and complicated relationship with the minister. The former president of NUCLEBRAS rarely went to the office of Cesar Cals; it only happened when by virtue of the administrative structure the matters had to be treated directly with the minister. Whenever possible, Paulo Nogueira Batista preferred to conduct business with the secretary general of the ministry, Arnaldo Barbalho, who had an active participation in the preparation of the nuclear program, since he was also secretary general of the ministry during the last administration.

The connection between Dario Gomes and Minister Cesar Cals dates back to 1977. The minister occupied the position of director of coordination of ELETROBRAS and Dario Gomes was adviser to the director of planning and engineering. Upon assuming the ministry in March 1979, Cesar Cals invited Dario to be his adviser for electric and nuclear energy.

In September 1980, Cals tried to raise him to the presidency of ELETROBRAS as successor to Mauricio Schulmann, who had resigned because he disagreed with Minister Delfim Netto over the company's budget. President Figueiredo did not concur with the nomination and preferred to appoint in Schulmann's place the president of Itaipu Binational, General Costa Cavalcanti, who proceeded to hold the two positions concurrently. At the time, Cesar Cals was the target of criticism inside and outside the government.

Early last year, when the then office chief of the minister, General Luciano Salgado Campos, requested his resignation to try a possible candidacy for governor of Ceara, Cesar Cals replaced him with Dario Gomes, who continued to exercise the position of energy adviser. The appointment of Gomes as president of NUCLEBRAS, therefore, opens up two vacancies in the Ministry of Mines and Energy.



Cesar Cals Congratulates Dario Gomes

511

50: 5100/2042

NEW NUCLEBRAS PRESIDENT PLANS NO CHANGE IN PROGRAM

Review of Research Projects

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 15 Feb 83 p 23

[Text] Brasilia--Civil engineer Dario Gomes will assume office as president of the Brazilian Nuclear Corporation (NUCLEBRAS) tomorrow, with the promise to faithfully fulfill the responsibility that was entrusted by the federal government, namely, to manage the scarce resources without at any time assuming commitments that involved expenditures exceeding the company's budget already approved by the government for this year. The directive laid down for the new NUCLEBRAS administration includes greater participation by the Brazilian scientific community to give emphasis to national technological research in the nuclear area, within the limit of the investments already determined, according to the Ministry of Mines and Energy experts.

Dario Gomes is regarded by energy sector experts as "an expert qualified to fulfill his tasks and without the nuclear frenzy that characterized his predecessor, Ambassador Paulo Nogueira Batista, who, according to the same experts, perceived himself to be the Brazilian-German nuclear agreement itself and never accepted that agreement as only part of the Brazilian nuclear program as a whole. His successor shows that he thinks much differently because in the first interview he granted after he was appointed to the position, he pointed out that "one cannot confuse the nuclear program with the agreement because the agreement is only part of the program."

Nonetheless, Ministry of Mines and Energy experts and Minister Cesar Cals himself have been guaranteeing in recent days that the agreement will be fulfilled, not only to honor the commitment assumed by former President Geisel with Germany but also because Brazil needs to obtain nuclear technology from that country. However, according to the experts, that transfer of technology will be effected in a slow, gradual and sure manner.

In private talks, "in order not to hurt the ambassador even more," aides to Minister Cals said that the government will no longer tolerate bearing the burden of the megalomaniacal dreams of Paulo Nogueira Batista who tried to impose a program for the construction of up to 45 nuclear plants by the year 2000, including one in Amazonia, a region rich in hydric resources.

No Plans

According to experts, during 1968 and 1969 the Brazilian nuclear construction program will be carried out in a very active manner. He will even have to forget that the Brazilian-German agreement provides for the construction of eight nuclear plants and proceed with the work on the other four plants within the limit of available resources. Thus, work on Angra-II, to go into operation in 1968, will proceed; the work on Angra-III will begin in the second half of this year, and if the Brazilian economy reacts positively, until this will be moved to the latter part of next year for the civil works of Juazeiro and Ilha Angra, near Sao Paulo.

Plans for the future, however, will begin to unify all research in the field of nuclear energy in a coordinated manner by research institutes and universities in an attempt to facilitate the development of national nuclear technology. For this, Brazil already rely on the presidential decree that established the National Council for the National Nuclear Energy Commission (CNS) and the CNEN. In addition to that, according to scientific experts, the new president of CNEN will promote meetings with the scientific community and the government for the exchange of information and plans.

According to experts, the Brazilian nuclear program, according to ministerial reports, will continue to be carried out in a very active manner. The Brazilian scientific community, however, is not satisfied with that was one of the reasons for the dissatisfaction of the Brazilian scientific community, the government is not satisfied with the Brazilian nuclear government.

The Brazilian nuclear program is being carried out in a very active manner. The Brazilian scientific community, however, is not satisfied with that was one of the reasons for the dissatisfaction of the Brazilian scientific community, the government is not satisfied with the Brazilian nuclear government.

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The Brazilian nuclear program is being carried out in a very active manner. The Brazilian scientific community, however, is not satisfied with that was one of the reasons for the dissatisfaction of the Brazilian scientific community, the government is not satisfied with the Brazilian nuclear government.

Brazilian governments, and it is not true that the signing of the agreement was a personal thing of Ambassador Paulo Nogueira Batista, but of the Geisel government.

"Implementation of the agreement does not depend on one person but on the interest of both governments," added Guenter Schueze," and there is bilateral interest in proceeding with the agreement. Batista was an agent of the Brazilian Government." In the spokesman's opinion, the real problem is the economic crisis which, he pointed out, is a problem that Germany is also facing. According to this, that was the reason that led the Brazilian government to delay construction of the nuclear plants.

"The postponement of the nuclear plants was not a great surprise to us," he declared. "It would have been a surprise if the Brazilian Government were to cut the investments of all the state companies, as it did, and increased only those of NUCLEBRAS." He said also that he understands that there is a curtailment in the demand for energy in Brazil and for that reason the government is not in a hurry to implement the agreement. Guenter Schueze concluded: "We hope that in the near future the Brazilian economy will resume its growth and that the government will resume the normal pace of the nuclear projects."



No Change in Plans

AP Wirephoto, Rio de Janeiro, Brazil in Portuguese 3 Feb 83 p 28

JOAO DE OLIVEIRA--the new president of NUCLEBRAS will be civil engineer JOAO DE OLIVEIRA, a native of Para, 57 years old, office chief at the Ministry of Mines and Energy since July of last year, before which he was in charge of the nuclear affairs of the ministry. The appointment of the ministry

expert to replace Ambassador Paulo Nogueira Batista was made by Minister Cesar Cals and approved by President Joao Figueiredo. It was a political solution which, according to experts in the energy sector, will strengthen Minister Cals in the federal context and even in Ceara, because Dario Gomes can help it to execute its plan for the construction of a uranium processing factory in Itaitaia, in that state, where the country's largest uranium reserve is located. The announcement of Dario Gomes' name was made at 1630 hours by Minister Cals, in an atmosphere of great euphoria on the part of his aides.

Showing great satisfaction, Cals announced: "The new president of NUCLEBRAS is Dario Gomes. He studied planning, design and construction of nuclear power plants in Spain; he was my adviser for nuclear affairs, and the ministry's representative on nuclear affairs to the Foreign Ministry and the National Security Council and in the Nuclear Protection Programming Commission; he is familiar with the nuclear facilities of various countries, and knows the subject well." In 1981, Dario Gomes was in Germany with Cals for contacts with the German Government and then was adviser to Brazilian congressmen in a visit to the headquarters of the International Atomic Energy Agency (IAEA) in Austria.

After the

After the introduction by the minister, Dario Gomes then said what he is thinking of doing and not planning to do, making it clear that he has no intention of making any change in his predecessor's plans: "NUCLEBRAS' program will not be changed. It will be implemented according to the existing resources and the scheduling of nuclear plants. Angra-II will proceed at a slower pace, with operation scheduled for 1988; the civil construction work of Angra-III will be initiated the second half of this year; and in the second half of next year, bids will be opened for the Iguape-I and II projects, assuming an adjustment (delay) of 1 year for each plant."

New president of NUCLEBRAS confirmed that he considers invalid the naming of Mendes Junior and Camargo Correa for the civil construction work of Iguape-I and II, done by NUCON without public bids, which is the main reason for Nogueira Batista's dismissal. Dario Gomes did not want to analyze this aspect. He preferred to guarantee that the next time there will be public bids.

Dario Gomes extends the feasibility on an industrial scale of the jet-nozzle uranium enrichment process purchased in Germany, thus far tested only on a laboratory scale. Yesterday, however, he stressed several times that the Brazilian nuclear program cannot be confused with the nuclear agreement. Although both have the same objective, he declared, the Brazilian-German agreement is part of the program, which also includes the development of national plasma and controlled fusion technology. He made it clear, however, that there will be no change in the agreement. "Only that the pace of implementation will be adapted to economic conditions."

Independent Program

Regarding an independent nuclear program, Dario Gomes observed that it has already been begun with the pilot plant for the production of UF-6 (uranium hexafluoride) that is being built in Sao Paulo, simultaneous with plasma and controlled fusion studies with the participation of the scientific community. Asked if he intends to give the Brazilian scientific community greater voice, he replied that "the community always participated in the nuclear program more or less, even criticizing it. The majority of the scientists are from the National Nuclear Energy Commission (CNEN), NUCLEBRAS, the Energy and Nuclear Research Institute (IPEN) and universities such as the University of Sao Paulo and of Rio Grande do Sul."

With regard to German participation in the program, he said that "KWU is fulfilling the agreement it made with Brasial and Brazil is fulfilling the agreement it made with Germany, with normal adjustments in the timetables of projects under way because of the country's economic situation. That problem of delays is not only in the nuclear sector."



TEN BILLION CRUZEIROS TO BE ALLOCATED TO NUCLEAR RESEARCH

Rio de Janeiro JORNAL DO BRASIL in Portuguese 16 Jan 83 p 34

[Article by Eneas Macedo Filho]

[Text] Sao Paulo--The federal government will invest about 10 billion of the 20 billion cruzeiros provided for the overall budget of the National Nuclear Energy Commission (CNEN) this year in research in the exclusively Brazilian alternative nuclear program. Those studies, centralized in the Energy and Nuclear Research Institute, will be concluded in 1990, a top-level official of the institute revealed.

The general details of that line of independent research, revealed by Minister Danilo Venturini, secretary general of the National Security Council, and confirmed by the minister of mines and energy, Cesar Cals, embrace a program the principal objective of which is to gain access to uranium enrichment technology through the ultracentrifugal process, a NUCLEBRAS adviser revealed. In the first stage, scheduled for 1987, a laboratory-scale enrichment plant is to go into operation; and approximately 3 years later, a semi-industrial unit will go into operation.

Alternative

According to that member of NUCLEBRAS who also participated in the latest reformulation of the nuclear program at the request of the presidency of the republic, the research of an alternative line to the Brazilian-German agreement began to be conducted in 1978. The decision taken by the federal summit (National Intelligence Service--SNI, National Nuclear Energy Commission--CNEN and the Brazilian Nuclear Corporation--NUCLEBRAS) sought to create a dichotomy in the program, separating the part dealing with the production of nuclear electricity from the part within the exclusive sphere of uranium enrichment technology, an essential item for national security, which also envisages the future possible construction of weapons.

That choice for the ultracentrifugal method, adds that specialist, was taken and later reinforced after it was ascertained that the "jet-nozzle" (centrifugal jet) process, the technology of which the country is purchasing from Germany, was not being endorsed. Thus far, that technology has shown to be feasible only on a pilot scale because commercially it requires more energy to the uranium than it will generate in a plant.

When the plan put into effect, the strategic-administrative concept also determined a differentiation of responsibilities: NUCLEBRAS would keep only the activities pertaining to the binational (electric) program, and the CNEN would be responsible for the alternative research. The decisive step not yet completed in the formation of a bibliography regarding the ultracentrifugation process, the stage of which began with the dismantling of old equipment of that type to learn its mechanical principle. Those units purchased in 1964 and during the Dutra administration were being kept at the Technological Research Institute (IPT).

The project is considered "classified" (secret) but IPEN directors revealed last week that experts from the new processes department, together with specialists from the chemical engineering division have already completed the preliminary phase of comparing the pieces of that equipment with the designs of more advanced equipment of that type. All of that effort is necessary since that technology is for sale by the countries that have it.

(11/15/67)

The alternative atom project was conceived without foreseeing the current revision of the Brazilian Nuclear Program but, according to the NUCLEBRAS Director, work for this year will continue at its regular pace because the appropriations have not been cut or even frozen.

In addition to confirming the existence of the project, Minister Cesar Cals declared the right of the country to research all existing nuclear technology, without that representing a conflict with the Brazilian-German agreement, but an alternative to the processes that are being established by NUCLEBRAS.

He also stressed that "the program we are establishing with German partners has a first commercial aim, and the second is alternative, independent. He revealed also that parallel with the ultracentrifugation research, the CNEN intends to research the technology of enriching uranium with laser rays.

According to the NUCLEBRAS source, the project will have a final cost of 100 million cruzeiros. He warns that the project may suffer the same fate as the Brazilian-German nuclear program, if its philosophy leads to a centralization of research, again separating the scientific community from

BRIEFS

ACCORDS WITH ITALY, FRANCE--Brasilia--The successor to Nogueira Batista (as president of the Brazilian Nuclear Corporation (NUCLEBRAS)), a quiet, technical man, granted a press interview after a period of 1 hour during which he received the congratulations of the people who filled the minister's office. Dario Gomes explained that "the company will honor all the commitments assumed by the previous administration." He pledged that "there will not be any break in the program." He observed, however, that "in view of the economic difficulties the country is going through, all projects will be adapted to the availability of funds." Dario Gomes pledged that Brazil will fulfil the agreement with Germany and pointed out that this agreement is part of the Brazilian nuclear program. There are other agreements signed by Brazil with various countries, such as Italy, which provides for studies on the use of sodium for cooling fast-breeder reactors; and with France, for the production of uranium hexafluoride. Despite the emphasis he placed on the need to adapt the projects to the shortage of funds, Dario Gomes confirmed the dates scheduled for the entry into operation of the nuclear plants: Angra-II, in 1988; Angra-III, in 1990 and Iguape-I and II, in 1992 and 1993, respectively. Work on those two plants will begin at the end of 1984. He revealed also that the factory for the enrichment of uranium utilizing the jet-nozzle method and the uranium reprocessing factory will be ready next year. [Excerpt] [Sao Paulo O ESTADO DE SAO PAULO in Portuguese 17 Feb 83 p 28] 8711

NUCLEAR INSTITUTE DIRECTOR DISCUSSES URANIUM

PA142325 Bogota Domestic Service in Spanish 1730 GMT 14 Feb 83

[Excerpts] President Belisario Betancur has signed Law No 7 which approves a cooperation agreement between Colombia and the United States dealing with the peaceful use of nuclear energy.

Ernesto Villarreal, director of the Nuclear Affairs Institute, has said that with this agreement Colombia will be able to acquire uranium for its small nuclear reactor, purchase new equipment for the peaceful use of this type of energy, train experts and receive assistance from U.S. experts.

This agreement--which has been ratified by law--replaces a previous agreement that the two governments signed in the 1960's, which had expired.

[Begin recording] [Question] Does this mean that the Colombian Government maintains its interest in developing nuclear energy for peaceful use in Colombia?

[Villarreal] Yes, I think that the fact that we already have an agreement with Argentina, and that the president has signed a new law ratifying the cooperation agreement with the United States, means that our country is interested in continuing with peaceful programs for the use of nuclear energy.

[Question] There has been much talk about the possibility that uranium can be found in Colombia. What does the Nuclear Affairs Institute know about this?

[Villarreal] The search for uranium in Colombia continues. However, at this time we cannot talk about quantities of reserves, at least not in the economic sense, because uranium has been discovered only in recent years. We know that the country has an important amount of this mineral, but quantifying it and determining whether or not its exploitation is profitable will require additional work. We think that only toward the end of this decade will we be able to talk about exploitable deposits here in Colombia.
[End recording]

JAMAICA

UWI TO GET SMALL NUCLEAR REACTOR FROM CANADA

FL122020 Bridgetown CANA in English 1903 GMT 12 Feb 83

[Text] Kingston, Jamaica, 12 Feb (CANA)--A diplomatic exchange between Jamaica and Canada has cleared the way for the acquisition by the University of the West Indies (UWI) of a small Canadian nuclear reactor for teaching and research, the Foreign Ministry here said today.

The exchange of diplomatic notes between the Foreign Ministry and the Canadian High Commission here was necessary for the sensitive equipment to be transferred to the UWI Mona Campus here, the ministry pointed out.

The reactor, known as Slowpoke 11 (safe low power critical experiment) is among the smallest and simplest available, and is designed specifically for use in universities, hospitals and research centers.

Six of the type, the Foreign Ministry said, are in operation in Canada and this will be the first in the Caribbean.

Funding for the reactor by the UWI was obtained from the European Economic Community (EEC), and the International Atomic Energy Agency is providing technical assistance in association with the nuclear centre being established at Mona.

Jamaica is providing much of the capital cost for the laboratories and offices at the centre, the Foreign Ministry said.

The nuclear reactor is to be used widely here in geological surveys and Jamaica's search for minerals.

Jamaica is a signatory to the treaty on the non-proliferation of nuclear weapons.

The nuclear reactor here will be operated in accordance with agreements between Jamaica and the International Atomic Energy Agency.

END: 0107/2041

BRIEFS

NUCLEAR REACTOR PLANS--The visiting former British Foreign Secretary and the Chairman of General Electric Company Lord Carrington called on the DCMLA and Minister for Energy and Mineral Resources Air Vice-Marshal Sultan Mahmud at his office in Dhaka on Monday, reports BSS. He discussed with the DCMLA about the possibility of further augmenting the generation source in Bangladesh in cooperation with the government of UK and GEC. Lord Carrington showed keen interest to assist in completing the work of 3 mw nuclear reactor unit at Savar. Air Vice-Marshal Sultan Mahmud expressed his satisfaction over the timely completion of work of 60 mw gas turbine generator by GEC which is the first phase of the 90 mw combined cycle power plant of Ashugani. The British High Commissioner in Dhaka, Mr Frank Miller was present on the occasion. [Text] [Dhaka THE BANGLADESH OBSERVER in English 1 Feb 83 p 1]

CSG 15100/7059

BOARD OF DIRECTORS OF ATOMIC ENERGY COMMISSION FORMED BY DECREE

1983, 10 - 1983, 10 - AL-RASMIYAH: The Official Gazette in Arabic No 4, 27 Jan 83 pp 198-199

Decree No. 81 for 1983 of Egypt's Prime Minister on Reorganizing the Board of Directors of the Atomic Energy Commission

Text: The Prime Minister:

After examining the constitution:

After examining Presidential Decree Number 288 for 1957 establishing the Atomic Energy Commission

After examining Presidential Decree Number 195 for 1977 regarding some provisions relating to the Atomic Energy Commission;

After examining Presidential Decree Number 503 for 1977 regarding the fact that the Atomic Energy Commission is subordinate to the Minister of Electricity and Water

After examining Presidential Decree number 437 for 1982 delegating some powers to the Atomic Energy Commission;

After examining the prime minister's Decree number 1044 for 1979 reorganizing the Atomic Energy Commission of the Atomic Energy Commission;

After examining the deputy prime minister's Decree Number 1928 for 1980 regarding the president of the board of directors of the Atomic Energy Commission

Decree: The Prime Minister:

The board of directors of the Atomic Energy Commission is to be re-established under the chairmanship of Dr Ibrahim Fathi Hammudah. The other members of the board are:

Dr. Ibrahim Fathi Hammudah, vice president of the board of directors of the Atomic Energy Commission.

Dr. Farid Fawzi al-Qadi, president of the National Center on Radiation Research and Technology at the Atomic Energy Commission.

Dr. Muhammad 'Izzat 'Abd-al-'Aziz, president of the Nuclear Research Center at the Atomic Energy Commission.

Dr. 'Abd-al-Rasul Ahmad 'Abd-al-Rasul, hot laboratory chief at the Atomic Energy Commission.

Engineer Amin al-Khashshab, secretary general of the Atomic Energy Commission.

Dr. Fawzi Husayn Hamad, chairman of the Nuclear Safety Committee at the Atomic Energy Commission.

Professor Farid Hafez al-Jurri, legal adviser to the Atomic Energy Commission.

Dr. Muhammad 'Abd-al-Maqsud al-Nadi, professor in the College of Science at Cairo University.

A representative from each one of [the following] ministries: electricity and energy, health, finance, planning, education, scientific research and defense. A representative is to be chosen by the authorized minister.

A representative from the Nuclear Power Stations Authority and from the Nuclear Materials Authority to be selected by the authorized minister.

The text of this decree is to be published in AL-JARIDAH AL-RASMIYAH The Official Gazette.

Issued at the office of the prime minister on 3 Rabi' al-Akhar 1403 [Hegira] (17 January 1983).

Signature

AEC UNLIKELY TO ACHIEVE NUCLEAR POWER TARGETS

Calcutta THE STATESMAN in English 25 Jan 83 p 6

[Editorial]

[Text]

The Atomic Energy Department's proposal to set up eight more nuclear power plants is presumably part of its plan for a total capacity of 10,000 MW by the end of the century, by which time the Tarapur station will probably have been decommissioned. Judging by the progress with the projects in hand, this ambitious target is extremely unlikely to be achieved. Not only has the construction of the two plants at Kalpakkam in Madras and at Narora in Uttar Pradesh fallen far behind schedule, even the two in operation seem to be constantly in trouble. Tarapur's problems are well known; but even the plant at Rana Pratap Sagar in Rajasthan has been plagued by a series of difficulties, though of a different kind. One of its two units has been closed since March because of a leak in an "end-shield" about which little has been disclosed, and the other had to be shut down at least twice last year because of various technical defects. No wonder that its capacity utilization has been persistently unsatisfactory.

The heavy water plants at Tuticorin, Baroda and Nangal have fared no better, and their output is critically important for the Indian nuclear power programme. The Minister of State for Atomic Energy admitted in Parliament last year that the country was experiencing a "tremendous shortage" of heavy water and that a part of the requirement had to be met through imports from the Soviet Union. If the shortfall persists, the scheduled commissioning of the first unit at Kalpakkam later this year (more than 99% of the work is now said to be complete after years of delay) may be further postponed. The plan for setting up five more heavy water plants is intended to remove this shortage, but no one can be sure what will be achieved or how soon.

If four power plants at Tarapur, Rana Pratap Sagar, Kalpakkam and Narora are in operation by the end of this decade, the installed capacity will be less than 1,800 MW, nearly 1,000 MW less than the capacity originally envisaged for the beginning of the decade. Depressing as it is, this gap between projections and actual growth would not have mattered so much if the power stations had at least maintained a high generation rate. But as in the conventional power sector, atomic power planners seem to accomplish more on paper than in practice. Before advertising ambitious plans for new nuclear power stations, they might be well advised to wait for the commissioning of the Kalpakkam and Narora plants and see whether the past lessons have been learnt from the difficulties experienced so far.

'HINDU' ANALYST DISCUSSES IAEA MEETING

Madras THE HINDU in English 3 Feb 83 p 9

[Article by G.K. Renu]

[Text]

NEW DELHI Feb 2

The Board of Governors of the International Atomic Energy Agency (IAEA) will meet in Vienna in the last week of this month to consider the alternative fuel arrangements made by India with France substituting the U.S. as supplier of enriched uranium during the remaining 10 years of the 1963 Indo-American agreement.

But so far only the U.S. has notified the IAEA about the alternative arrangements in terms of the diplomatic notes it had exchanged with India on November 30, 1982, following the conclusion of an agreement between India and France on the subject.

The U.S. has done so under its trilateral obligation arising from the joint agreement signed by India and the U.S. with the IAEA on January 27, 1971, empowering the Agency to perform the safeguard functions at Tarapur in terms of the 1963 Indo-American agreement. But neither India nor France has considered it necessary to formally inform the IAEA of the substitute arrangement.

During his visit to Delhi in December last, the IAEA Director-General, Dr. Hans Blix, said that until such a reference was made by the governments concerned, the Agency could not indicate its response to the new fuel supply arrangement. He did not indicate that the IAEA would object to the substitution, although he seemed to imply that it would have to carefully examine the implications.

Unhappiness. Dr. Blix, however, conceded that as a service agency the IAEA was not competent to question the propriety of making alternative fuel supply arrangements on the basis of the old safeguards within the

framework of the 1963 agreement. But he made no secret of his unhappiness over the conclusion of this new arrangement without consultation with the IAEA.

It remains to be seen what stand the IAEA Board of Governors would take with a member of the nuclear suppliers group accepting this responsibility to act as a substitute fuel supplier under the old agreement, without insisting on the application of the updated safeguards as part of the collective obligation to invoke both the pursuit and perpetuity clauses. The Board's attitude will be determined largely by the stand the U.S. takes during the discussion, whether it goes along with India and France in maintaining that the mere substitution of the supplier under an old agreement need not necessarily attract more stringent safeguards provisions.

The diplomatic notes exchanged by India and the U.S. on November 30 confirming the new fuel supply arrangement specifically mention that the trilateral agreement signed with the IAEA will remain in force during the remainder of the 30-year agreement. It clearly means that the same level of safeguards that were agreed upon in 1971 would continue to apply even after the substitution.

There is, however, a grey zone in the three-paragraph agreement signed by India and France on November 27 last which says that the two countries would consult during the life of the 1963 Indo-U.S. agreement on arrangements to ensure the implementation of its provisions, that is, the nuclear material supplied by France and the by-products derived from it would continue to be used for peaceful purposes. The implication is that India has an obligation to respect this commitment even after the expiry of the 1963 agreement.

RADIATION HAZARD FROM TROMBAY PLANT MINIMAL

New Delhi PATRIOT in English 20 Jan 83 p 2

[Text]

Trombay fishermen are not exposed to any radiation hazard from nuclear wastes discharged into the bay, says a study by two health physicists of the Bhabha Atomic Research Centre, (BARC), reports PTI.

The study by Dr P Patel and Dr S Patel claims to have analysed the effects of radioactive elements discharged into the bay by the Trombay atomic facilities during the last two decades. It says that even extremely contaminated fish caught in the bay is safe to eat.

Reporting their findings in the bulletin of radiation protection they said the radiation dose to fishermen "is much below the permissible limit" even after considering "the extreme conditions of contamination observed to this date."

The study said that levels of toxic plutonium-239 in the sediments "were extremely low" and hence this cannot pose "inhalation hazards during fishing".

The exposure through operating fishing gear is insignificant "since the levels of these radioactive nuclides are extremely low over the 'fishing zone' the study said.

Fishing on the soft clam bed off the discharge zone (where the highest radioactivity was recorded in 1971) will expose the fishermen to less than one-third of the recommended radiation dose, it is claimed.

The study found very little radioactive contamination in salt and fishes harvested from the bay. So the uptake of radioactivity by consuming 15 grams of salt and 50 grams of meat of extremely contaminated shellfish caught in the bay will still be less than 2.3 per cent of the limiting value, it said.

According to the study water, silt, silt and sediment up to 100 km from the discharge zone have been monitored since 1967.

The bay where the nuclear wastes are discharged yields about 2300 tonnes of fish annually, including the Bombay duck and blood clam (*A. Granosa*), which has a specific affinity for radioactive elements in the discharged waste.

Maximum contamination was observed in fish caught from an area within 1 km from discharge zone, according to the study.

It said that sources of nuclear wastes in Trombay are the Cirrus and Apsara reactors, a radio isotope laboratory and a fuel processing plant.

The wastes are diluted and mixed with 45 million litres of sea water before being released to the bay. The major radioactive elements in the wastes are Cesium-137, Strontium-90 and Ruthenium-106, the report said.

According to the scientists the findings showed that the bay environment was able to decontaminate itself and hence more wastes could safely be dumped into the sea without affecting the environment.

INDIA

BRIEFS

KOTA NUCLEAR PLANT--Kota, January 28 (PTI)--The second unit of the Rajasthan atomic power project which was commissioned only recently tripped and stopped generation yesterday. The unit was generating 205 Mw of power. [Text]
[Bombay THE TIMES OF INDIA in English 29 Jan 83 p 9]

CSO: 5103/7058

UNITED STATES' BIAS TOWARD INDIA CRITICIZED

Karachi NAWA-I-WAQT in Urdu 1 Mar 83 international edition p 3

[Editorial: "Mr America's Double Standards"]

[Excerpts] The U.S. State Department assistant secretary for Asian affairs [title as printed], Mr (Schaeffer), told the Congressional Foreign Relations Committee that investigations by "the CIA" have discovered "concrete evidence" that the PRC is assisting Pakistan in the manufacture of nuclear arms. A committee member questioned him on India's nuclear program, especially the manufacture of plutonium by reprocessing spent atomic fuel, Mr Schaeffer replied that the Indian program is open and aboveboard and that Mrs Gandhi says that the plutonium will be used for nonmilitary purposes and not for the manufacture of weapons.

Mr Schaeffer's reply is an obvious example of the double standard adopted by Mr America with regard to Islamic and other countries, especially Pakistan due to the influence of the Zionist lobby. Mr Schaeffer's logic means, in simple words that Pakistan's plan is covert and is being clandestinely aided by the PRC, while India is overtly carrying out its program and therefore it is being supplied a nuclear plant and fuel by the United States. Then why is it that President Ziaul Haq's assurances that Pakistan's limited nuclear program is for peaceful purposes but Mrs Gandhi, whose country has already staged a nuclear explosion, is believed when she says that the plutonium, which is being manufactured and is used in making nuclear weapons, will be used for nonmilitary purposes. [Passage on similar double standards of Carter and Kennedy administrations omitted.]

It should be noted that the long-term plan formulated by the United States for the sale of arms and giving of economic aid to Pakistan is also on the condition that Pakistan will not manufacture nuclear arms. Despite this stringent and very explicit condition, constant suspicion and direct accusations about Pakistan's nuclear program are most inappropriate and degrading for a country like the United States which is also a superpower. Regarding India, the U.S. experts and advisers say that it is in the forefront of all the third world countries, but the implications of this are brushed aside in the assurances by Mrs Gandhi, but Pakistan's limited program has been labeled "clandestine" and "concrete evidence" has been

"uncovered." Such statements are not becoming of a person like Mr Schaeffer.

U.S. and Western circles malign very quickly Pakistan's statements to the extent that they have become schizophrenic in their denigration of its nuclear program because they cannot tolerate the fact that the Islamic world should gain access to new sources of energy through nuclear technology. The utterances of Mr Schaeffer that Pakistan's nuclear plan is not acceptable while India's plan is acceptable are evidence of this attitude of the United States.

CSO: 5100/4705

ISRAELI-INDIAN 'CONSPIRACY' AGAINST NUCLEAR INSTALLATIONS REVEALED

Lahore NAWA-I-WAQT in Urdu 4 Jan 83 p 10

[Editorial: "Israeli-Indian Threat"]

[Text] The British newspaper OBSERVER's special representative of Indian descent, stationed in London on his return from a recent visit to India, has disclosed that an Israeli-Indian conspiracy with regard to Pakistan's nuclear installations has been readied. According to this report, India asked Israel whether the operation Israel used to destroy nuclear installations in Iraq was ready for Pakistan. It is reported that Israel expressed its willingness and said that if facilities were available for refueling its planes at an air base near Pakistan, it would implement this operation. According to the report, India proposed the Jampur airport. It may be stated here that Israel after destroying the Iraqi nuclear installations had threatened that it would destroy the atomic installations in all Muslim and Arab countries, including Pakistan, engaged in the acquisition of atomic capabilities and which threaten Israel. Similar threats were made by India, too. At the time, the president declared that "we have taken all necessary precautionary measures and anyone taking such a foolish action will be given an exemplary lesson."

Now if, on the one hand, Mr Subramanian has disclosed the Israeli-Indian conspiracy against Pakistan and on the other hand a correspondent of Indian descent has published it, then it can be concluded that this deliberate attention is meant as a warning for Pakistan. At present, 47 countries have atomic capabilities, there are 800 atomic reactors in use in many countries and 6 countries including India have exploded atomic devices. What is surprising is that despite all this, why are the U.S., Britain, Israel, and the Russian satellite, India, interested in Pakistan's atomic capability? Is it because Pakistan is a Muslim country and wants to acquire atomic capability for peaceful purposes only?

8. Since the Government of Pakistan will take the necessary precautions, as it has already declared, and will give this report the importance it deserves, should India or Israel or both of them dare to carry out their threat, then Pakistan should be prepared to treat it as the lesson befitting the Pakistani nation and a warning to the world.

BRIEFS

KOEBERG CONSTRUCTION PRICE--The original total contract price for the construction of the Koeberg nuclear power station was R1 285-million, the Minister of Mineral and Energy Affairs, Mr P T C du Plessis said yesterday. Replying to a question by Mr R R Hulley (PFP, Constantia), the Minister said the estimated cost of the project in 1983 money terms would be R1 819-million. "This estimate does not include escalation costs from 1983 until the completion of the project. "The cost of the recent damage still needs to be quantified and will depend amongst other things on insurance payments and the delay in the commissioning of the power station." [Text] [Johannesburg THE CITIZEN in English 17 Feb 83 p 4]

KOEBERG EXPLOSIONS--No unexploded devices were found at the Koeberg nuclear power installation before, during or after the recent explosions there, the Minister of Mineral and Energy Affairs, Mr Pietie du Plessis, said yesterday. He was replying to a question by Mr John Malcomess (PFP, Port Elizabeth Central). Mr Du Plessis said the containment building of unit one had been classified as a controlled area before the explosions and that an average of 450 employees of the contractor had had access to it. "The containment building of unit two was, however, not classified as a controlled area and on average 4 400 employees of the contractor had access to it." Security clearance on the backgrounds of these contract personnel had been obtained from the applicable Government departments. "However, as a result of the high turnover of certain categories of locally recruited employees, this was not always possible in their cases." Mr Du Plessis said security checks were carried out whenever such members of the contract personnel entered the containment buildings. [Text] [Johannesburg THE CITIZEN in English 10 Feb 83 p 4]

ELECTRICAL FAULT AT KOEBERG--An electrical fault caused the fire at the Koeberg nuclear power station during July 1982 and the cost of the damage was R250 000, the Minister of Mineral and Energy Affairs, Mr Pietie du Plessis said yesterday. He was replying to a question by Mr Roger Hally (PFP, Constantia). Mr Du Plessis said revised working and maintenance procedures had been introduced as recommended by the board of inquiry and that Factor's Insurers and the contractor would bear the cost of repairing the damage. [Text] [Johannesburg THE CITIZEN in English 10 Feb 83 p 4]

POSSESSING URANIUM--A man found guilty of possessing 5,21 kg of uranium has been fined 11 000 (for one years' imprisonment) in the Windhoek Magistrate's Court. Richard Ojaha (29), pleaded guilty to illegal possession of the uranium. He was also sentenced to two years' imprisonment, suspended for five years. The magistrate told Ojaha there were terrorist activities in the country and that inhabitants could have been exposed to grave dangers--had the uranium fallen into the wrong hands.--Sapa. [Text] [Johannesburg THE CITIZEN in English 10 Feb 83 p 11]

KOEBERG EMERGENCY PLAN--Sirens and loud hailers will be used to alert people if a serious accident occurs at the Koeborg nuclear power station. And special programmes on all SABC radio channels serving the Koeborg area will be interrupted, says an article in the latest edition of National Safety. In terms of SABC's emergency plan, sirens will alert people living within the danger zone--a 5 km radius around Koeborg--while those outside the 5 km range will be alerted by the police or emergency workers using loud hailers. Safety preparations in the event of a serious accident include: • Take shelter, go indoors and close all windows and doors, turn off any fans or air conditioners and cover up airbricks or other ventilation holes. • Take suitable iodine tablets which will minimise the retention of radio-iodine in the body. • Lock doors and turn off all appliances. • Listen to the radio and follow instructions. The SABC emergency plan recommends that people: • Stay tuned to the radio for further information. • Do not use telephones except in cases of emergency. • Give neighbours a knock on the door to help spread the word. [Text] [Johannesburg THE STAR in English 9 Feb 83 p 3M]

FIREFIGHTING--An investigation has been launched into a fire that broke out in a building at the nuclear research station at Swakopmund near Windhoek. A spokesman for the Atomic Energy Corporation said yesterday. At Swakopmund, the corporation has imposed a clampdown on decorations. The spokesman confirmed that there was a fire in one building at the station but said it was "under control." Other than that, no further information will be released until the investigation has been completed. And there will be no comment on what will be, the AEC spokesman said. Newspaper reporters and about 10 fire engines, a number of police cars and an ambulance were called to the scene at the fire late on Wednesday night. There were reports that the fire was not serious and officials at the scene reportedly told reporters that the fire was not serious. [Text] [Johannesburg THE STAR in English 22 Feb 83 p 5]

SWEDEN'S NUCLEAR INSPECTORATE CHIEF: HALT SHIPPING WASTE TO UK, FRANCE

Stockholm DAGENS NYHETER in Swedish 11 Feb 83 p 12

[Article by Ingemar Lofgren]

[Text] "Bring home Swedish nuclear waste from France and England." This was suggested by Lars Nordstrom, general director of SKI (Swedish Atomic Energy Board). According to Nordstrom, the Swedish waste could be used to spread nuclear weapons, despite the government's guarantees. Instead of reprocessing the waste abroad, we should store it in Sweden, he said.

The general director of SKI has two reasons for expressing these fears.

"I am reacting against transport to various places and the danger of the spread of nuclear weapons," Lars Nordstrom told DAGENS NYHETER.

With regard to transports, Nordstrom points to the dangers that can arise after the actual reprocessing. The uranium and plutonium then are transported to various fuel factories at secret destinations. This uranium and plutonium probably is transported over highways, Lars Nordstrom said.

With regard to the spread of nuclear weapons in the world, Lars Nordstrom points out that the international control organ IAEA (International Atomic Energy Agency) actually is capable of preventing the spread.

"If we have an arms race such as we had during the thirties, I believe all international agreements will be ignored," Nordstrom said.

"The present situation of the situation we have today. I am seriously disturbed by the lack of control and the politization of IAEA."

The IAEA consists of about 110 member nations, is based in Vienna, Austria, and one of its tasks is to see that plutonium is not misused and used for nuclear weapons.

The head of IAEA is Hans Blix. His closest coworker is Johan Vollenket. He shares some of Lars Nordstrom's concerns.

There are many political problems in the department. One of

meeting to deal with IAEA. We are not immune to this, however, and we have been "intimidated" by political demonstrations."

The monitorer what is occurring today, but we cannot physically prevent anyone from obtaining nuclear weapons in the future. It is possible that they may ignore all the agreements," Johan Mallander said.

An IAEA meeting will be held on 21 February. Many fear that the organization has weakened now that the United States has threatened to boycott future meetings because of a demonstration against Israel by Arab and other nations last fall.

Johan Mallander is convinced, however, that the United States will attend the meeting so that IAEA can continue its role as international monitor.

It is against the background of nuclear proliferation and the transport of nuclear materials, however, that Lars Nordstrom has expressed his personal opinion that Sweden's nuclear waste should be sent back to Sweden for direct storage.

"One way or the other."

Direct storage is a different technology. Direct storage, on the other hand, is a different procedure. Handling is controlled in a different manner. It is not handling the waste and the cost of permitting it to spread simply and directly.

When the nuclear spent nuclear fuel from Sweden is stored at Windscale, it is not being stored there to be reprocessed--no one knows when. In fact, it is not a guarantee as to how it will be used. The nuclear waste from the recently arrived 5 tons spent nuclear waste for reprocessing in Sweden.

Sweden would like that Sweden should send immediately for the fuel that has been stored in Britain and England, but would like to see this happen within a reasonable time in the latest," Nordstrom said.

Sweden's Parliament, generally 100 days, will meet to discuss the future of Sweden's nuclear waste in the future.

FINLAND WANTS TO BURY ITS NUCLEAR WASTE IN SWEDEN'S ROCK

Stockholm SVENSKA DAGBLADET in Swedish 7 Feb 83 p 6

[Article by Bo Ostlund]

[Text] Finland has asked Sweden to store spent Finnish nuclear fuel. If Sweden agrees to accept the Finnish waste it will be deposited at Clab, the central waste storage facility near Oskarshamn.

... inquiries have not occurred on the diplomatic level, but the Atomic Power Company that owns both the Swedish-manufactured boiling water reactors in Olkiluoto has turned to SKBF (Swedish Nuclear Fuel Supply Company).

The Finns have not yet made a decision on the waste question and it also has been suggested that Finland build a Clab, i.e. a waste storage facility, of its own.

Finland's nuclear power program consists of two entirely separate parts--a Swedish section and a Soviet section.

The Swedish section includes the two boiling water reactors in Olkiluoto built by Asea-Atom, also is responsible for fuel production and as recently as last Thursday the Swedish government decided to permit Asea-Atom to export additional uranium fuel to Finland.

Open question

... the final storage of the waste from Olkiluoto remains an open question. The issue is not yet acute for Finland. There still is room for storage at the power plant.

The Soviet section of the nuclear power program is already closed. Finland's contract with the Soviet Union is similar to the arrangement the Soviet Union has with all its nuclear power customers in Eastern Europe. The Soviet Union supplies the reactor technology and the fuel and disposes of the waste. Waste from the two Soviet-built nuclear reactors in Lovisa already has been shipped back to the Soviet Union.

doors of trucks are tightly open. On a cold fall day sizzling hot steam was
coming out of the large containers of spent fuel from the pressurized water
reactors. The trucks are rolled eastward through the rain.

What the Soviet Union does with the spent fuel is an internal Soviet issue.
If the Soviet Union wishes, it can use the plutonium from the waste to produce
nuclear weapons or use the waste in its advanced breeder technology, i.e. a
plutonium reactor that produces (breeds) more uranium as "waste."

The uranium permitted by Thursday's government decision to be sent from Sweden
to the pressurized water reactors in Olkiluoto is covered by the nonproliferation
agreement signed by all four parties involved in the Swedish sector of the
"Inco" uranium power program: Canada, which produced the uranium and owns it,
the Soviet Union, which enriched it, Sweden, which produced the fuel elements,
and Finland, which owns the reactors.

Under the nonproliferation agreement, all parties involved are obliged
to have "stringent" "safeguard control," i.e. the uranium and the waste cannot
be transferred to any third party without permission from the owner of the
material, which in this case is Canada and the United States.

What is the situation?

The International Atomic Energy Agency, the United Nations international
body for nuclear energy, has discussed cooperation on waste problems. Here
agreement between Finland and Sweden has been seen as something
new.

But each individual country--20 nations now have nuclear
energy--is facing growing steadily--with differing economic, safety,
and other conditions, to attempt to solve its own waste problems--with
different degrees of success.

BELGIUM

PROBLEMS, ADVANTAGES OF RECYCLING NUCLEAR FUEL WEIGHED

Brussels LE SOIR in French 31 Jan 83 p 2

Article: "Belgium To Recycle Nuclear Fuel"

[Text] The energy debate, that eternal Loch Ness monster, is finally coming to an end. The House completed its work last June. The Senate committee has just finished its work, and the discussions in public session are expected to start in mid-February in the Senate. From all those lengthy debates, a very important decision can be noted: Belgium will once again begin reprocessing nuclear fuel. It will reopen and expand the "Eurochemic" plant located in Dessel, in Campine. In plain language, plutonium will be separated from the other nuclear waste.

This decision is significant on two accounts: Belgium thus becomes the second country, after France, to embark boldly on semi-industrial reprocessing. The United States and the FRG are still hesitating. On the other hand, this was the first decision the members of parliament had to make. As a matter of fact, the law of 9 August 1980 specified that only an energy debate in parliament could give the "green light" to reprocessing in Belgium.

The decision has already aroused a sharp controversy. And the secretary of state for energy, Etienne Knoops, could not resist his inclination for "provocative" statements when he answered curtly that "to support the reprocessing of nuclear fuel boils down to being more ecology minded than the ecologists themselves, and that this was an example of rational use of energy." But things are not that simple.

Reprocessing are well known. By 1980, for example, the Belgian nuclear power plants will produce 150 tons of spent fuel per year. The reprocessing then consists of processing in such a way as to separate the various components of this fuel. What is recovered is uranium and plutonium, which can then be used in traditional nuclear reactors or in breeder reactors. Thus, this would mean a savings of energy and of foreign currency, whatever the cost of the rational use of energy."

The main advantage is to separate from the irradiated fuel, the most dangerous radioactive products, thus to reduce the volume of waste and to facilitate the transfer of its final storage. This is what Etienne Knoops calls the "green light" for reprocessing.

But, aside from these advantages, there are disadvantages. The reprocessing of the fuel does not present any theoretical difficulties, but it is a "dirty," dangerous operation. In addition, it extracts plutonium from the fuel, and then there is the possible risk of part of that plutonium being stolen by terrorists eager to make themselves a small nuclear bomb. This is the "nuclear arms proliferation" aspect of reprocessing.

Reprocessing is an open door to the breeder reactor, which is -- virtually -- the only way to use the plutonium produced. Finally, the economic viability of the operation has not been proven.

The "Eurochemic" plant operated in Dessel from 1966 until 1974. Since then, it has stopped and been forgotten. To start it up again will cost 15 billion dollars, says, estimates Mr. Knoops. Nearly double that figure, responds the U.S. A.E.C. The experience of the French reprocessing plant in La Hague has shown the complexity of the operation, the low level of reliability of the plant and the higher than expected costs. The recovered uranium remains too expensive, and there is not yet a real market and a real price for plutonium.

Reprocessing has now caused the large majority of Western countries to hesitate, despite the enormous problem posed by the irradiated nuclear fuel. In the year 2000, there will be a worldwide stockpile of 200,000 tons of irradiated fuel in storage; generally speaking, in cooling ponds while awaiting reprocessing.

The U.S. has signed a very expensive contract with the La Hague plant to reprocess 1,000 tons of fuel. The report of the "wise men" recommends that further reprocessing of the fuel be done in our country, by the U.S. A.E.C., or perhaps at all the same thing.

The U.S. A.E.C. would see its capacity doubled, going from 1,000 tons per year to 2,000 tons per year. It would essentially process "special" fuel, fuel from test reactors, but also, they say, fuel from commercial reactors. Finally, it is not excluded that foreign capital may finance the work at Eurochemic. The role of Eurochemic would be to process the fuel, and would become integrated into a kind of division of labor with the U.S. A.E.C. We would have our fuel reprocessor at La Hague, and the U.S. A.E.C. would reprocess some of the foreign fuel.

Is this the answer? Many voices, particularly in the United States, are saying "once through cycle." The fuel would not be reprocessed, but would be used once and then discarded. The U.S. A.E.C. is content with saving the whole thing at great cost. The U.S. A.E.C. is a nuclear proliferation risk, and a lower cost.

The U.S. A.E.C. has a committee, headed by Professor Castling, to study the "once through cycle." The committee's conclusions were qualified. It is not clear if the "once through cycle" has been solved yet. It proposed, ultimately, to start reprocessing, which has not started, to study the "once through cycle" as a study or carried out of the other option, the "once through cycle."

Hence, the problems in matters of reprocessing are far from having all been settled, and uncertainty remains. To reopen "Eurochimie" is justified in order to keep up with the latest techniques, but to expand the capacity of the plant and to turn Belgium into a reprocessing center is another matter altogether!

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230: 61 6/4556

REPROCESSING FACILITIES IN LOWER SAXONY, BAVARIA PLANNED

Frankfurt/Main FRANKFURTER ALLGEMEINE in German 29 Jan 83 p 10

[Article by Klaus Broichhausen: "Two Irons in the Fire for Nuclear Waste Disposal"]

[Text] Gorleben, January--In Hannover's Wendland unrest breaks out again. In this border area on the Elbe, known as the rural kreis of Luechow-Dannenberg, resistance is being organized anew against a nuclear power plant. The plant would reprocess used fuel elements from light-water reactors. During the reprocessing, a chemical process, usable nuclear fuel and nuclear waste are separated. Originally a facility for reprocessing burned-out nuclear fuel rods was to be built in the Wendland community of Gorleben over the salt mine, which was planned to be used as a depositary for radioactive waste. Investigations are continuing to determine whether the Gorleben salt mine is suitable for storing nuclear waste. A large hall is also under construction in the region which is to be used to store burned-out fuel rods until they can be disposed of permanently. Lower-Saxony's Minister-President Albrecht, however, declared that no reprocessing facility will be built in the region under any circumstances.

But Albrecht caused surprise within his own ranks when he gave his approval at the end of the year for testing an alternate site for a reprocessing facility. It is only 40 kilometers from Gorleben, at the edge of the state forest of Gehrde, which is also located in the kreis of Luechow-Dannenberg. In the past the impression existed that the entire rural kreis of Luechow-Dannenberg was to be considered as a site. The view was based on a letter from Albrecht in May of 1981 and addressed to Rathje, the mayor of the community of Gehrde. Albrecht's letter said that "the land government will not submit a possible application for the construction of a reprocessing facility in the rural kreis of Luechow-Dannenberg under any circumstances." Rathje had asked for a binding statement concerning the establishment of a reprocessing facility in the kreis of Luechow-Dannenberg, especially in Gehrde. But Albrecht is saying--when commenting on his letter in the press--that the reference to the rural kreis of Luechow-Dannenberg was indeed somewhat imprecise. It was the reference to Gehrde. His reason for this is that in the circumstances, the Gehrde site could have been seen as the only possible site.

At the moment the Federal government is considering the establishment of a plant with an annual reprocessing capacity of 350 tons of uranium, bearing in mind that it creates 1,200 permanent jobs. Such a novel industrial plant would revitalize the entire economy of the region. Grill, CDU Landtag Deputy, continues Hertz's opinion: "The Kreis needs nuclear-waste disposal facilities. It cannot continue its budget with normal means." Poggendorf, the regional director of the Kreis, is counting on the fact that the facility will yield new, additional tax revenues, and he hopes that they will be substantial and help the financial straits of many communities. Putting the new reprocessing industry in this rural Kreis could prevent a further migration of young people from this area because there are no prospects for jobs.

If the economic situation in this border territory had not deteriorated, the decision-makers would not have had another opportunity of making a new attempt at building a reprocessing plant. Officially, however, the Federal Office for Processing Nuclear Fuels--the joint enterprise in the German Democratic Country which is responsible for making decisions in this matter--has not selected an alternate site in Lower Saxony to replace Gröden. A new application for the licensing of a reprocessing plant, submitted in the past, was made without reference to a site. Dragahn, however, has chosen a suitable site as far as the German Economic Commission is concerned, and it has already access to some areas which are the property of the Federal Industrial Administration Agency. The area already houses a Federal Plant for Plain Uranium. It means that the facility is used to defuse nuclear waste from the Bundeswehr.

The reprocessing company for a suitable site remains controversial. During the last year, politicians of all parties accused the company of stirring unnecessary unrest in the country because it was looking for reprocessing sites in as many areas as possible. Since the company was denied in Gröden in 1979, it has been looking at other areas in the Saarland-Palatinate. In the meantime two applications have been submitted. At the present, Walsdorf in the Upper Rhine region is the only definite site. The application for this site has progressed fairly well. Investigations into the construction are in progress.

As far as this is concerned when looking for a site, the company is not at all justified in its mandate of finding a site for the so-called disposal of nuclear waste. The company explains that since the setback in Gröden, it has been looking for a new site. It is not at all clear what the company has done in the meantime. According to Salander, the reprocessing facility in Gröden will be dismantled and the procedure will be carried out under the supervision of the Federal Office for the Environment.

Only a few days ago, Zimmermann, the FRG minister of the interior, called attention to the fact that the nuclear waste disposal concept for the FRG and the Laender provides for the construction of only one facility. Consequently the supporters of reprocessing plants in Bavaria and in Lower Saxony are in competition with one another. At the present time the Bavarians are ahead of Lower Saxony when it comes to the licensing procedure. Lower Saxony's land and local politicians who are in favor of a reprocessing facility must be aware of it. They attracted a great deal of criticism and were personally reviled when a new dispute broke out over the dangers of reprocessing, and the final outcome of their efforts for more jobs in the rural kreis of Lachow-Dannenberg remains uncertain. The Bavarians, on the other hand, are making progress.

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HERVE ON NUCLEAR WASTE RETREATMENT, FUEL COSTS

Paris L'UNITE in French 21 Jan 83 pp 3-4

[Interview with Edmond Herve, minister delegate to the minister of industry for energy, by Martine Dumas; date and place not given]

[Text] Nuclear energy is a field with which the French are not very familiar but which they distrust somewhat, probably less than the "ecology freaks," but then, that is not saying much. After all, what happens to the waste produced by the power plants, the radioactive fuel? The Castaing report, ordered by the government in December 1981 and just made public after being examined by the High Council on Nuclear Safety, provides the beginnings of an answer. France has mastered the technique of treating radioactive waste. Edmond Herve, minister of energy, does not conceal his satisfaction over this triumph awarded to the La Hague plant. He is not smug, however, because nuclear energy still poses many problems and as a result, France's energy policy is not reduced to nuclear power. For example, oil represents 48 percent of our energy needs, but its price variations can constitute a real danger for consumer as well as producer countries. There is oil but there is also the coal industry, which must be protected, gas, whose use demands to be developed, and the new and renewable sources of energy that require urgent promotion. Herve recalls all these aspects of French energy policy, a coherent policy that "corresponds to the objective of independence and sovereignty" pursued by France, and explains them for L'UNITE. Nor does he forget to mention the EDF [French Electric (Power) Company], on the hotseat recently in the Parliament.

[Text] In December 1981, the government entrusted Raymond Castaing with the task of drawing up a report on the management of radioactive waste, a report just made public. What lessons can you derive from it?

[Text] Castaing's report deserves discussion. First of all, the report clearly states that we have mastered -- totally, scientifically, technically -- and completely -- the treatment of radioactive waste. This also means that there is no conflict between the requirements of that reprocessing and those of the protection of the environment and the preservation of the earth. Thanks to this positive result, due to 20 years' efforts, we are able to continue to develop nuclear energy. This is a very important step in the modernization and expansion of the EDF in 1983.

Answer: By definition, household electrical heat is not continuous use and here also, we have to go case by case, thinking about the best type of domestic heat that can be used. That is why I asked the French Energy Control Agency to write a guide to domestic heating for private users. It is in terms of each situation that we must find an answer. The French must know that electricity is more expensive to produce in the winter than the summer. Nuclear electricity makes it possible to lower prices for continuous use, by manufacturers, for example, but not for winter needs.

(Question: How do sales of our nuclear power plants abroad look?)

Answer: It is a market in which we have a good foothold, but it is a difficult market. The number of power plant builders has not dropped, while several countries have halted their nuclear programs and are therefore trying to export what they can no longer sell within their own borders. That is the case of the United States, the Federal Republic of Germany and Canada. At the present time, we are deeply into negotiations with two countries: Egypt and China.

(Question: And South Africa?)

Answer: No international call for bids has been issued. Therefore, the Government is not involved.

(Question: Let us now turn to the EDF, which for 1982 has a deficit of 1,000 billion francs. A recent report by the Commission on Competition, published in the periodical L'ESPIONNAGE, questions the management of the enterprise, particularly agreements made with two of the EDF's main suppliers: the Imperial Chemicals firm and the ICI [General Electrical Company]. What is your reaction?)

Answer: As far as the Ministry of Economy and Finance, we have ordered a report on the management of the EDF, which will be made by the Finance Ministry. It is a report whose content we shall naturally study with interest. But let me be clear: The EDF deficit is the result of a past deficit. And we have the pledge, a few weeks ago, to absorb that deficit in 1982 and 1983.

(Question: How?)

Answer: We have three possible paths: a multiplication in rates, an increase in taxes, or a reduction in consumption of electricity of winter users. We are going to study the possibility of EDF management in order to improve it. But we must not forget that the EDF must be sought by any public enterprise. It is a public enterprise which is working ahead, as well as for the general interest of the country and especially officials. That balance is demanded by the Government and we remain for the moment.

(Question: Concerning the deficit, there has been a report that the EDF will be able to cover its deficit in 1982. If that is the case, would there then be a need for a new law?)

[illegible][illegible]

...menting decentralization. In the field of energy, now all, it is not possible.

...energy plan must be put into effect in each region. At the regional level that we can best utilize the rational use of energy, which is necessary energy conservation at the level of the most effective. In particular, I am thinking, in the case of territorial development, of insulation, solar plans or even waste plans. In France, if the types were processed, it would enable us to save the equivalent of 100,000 tonnes of oil. No single central ministerial order will provide the necessary means. Regions and communes have a cardinal role to play.

...is there not a contradiction between the need for national energy and the desire for a regional energy plan?

...There are major decisions that are on the national level, decisions involving heavy investments, general lines of action and incentives. But these incentives must be taken over at other levels. The movement of up and down the line can be perfectly coordinated.

...we have set up insulation systems, financing and standards. At the regional level, there are no competent architects, engineers or people with convictions and willing to march, then our standards, investments will have no effect. We need an effective relay. The energy battle is also won at the level of the local community.

PRODUCTION CAPACITIES OF FARM RAISING VARIOUS TYPES

THIS REPORT PRESENTS A SUMMARY OF THE DATA COLLECTED BY THE

RESEARCH GROUP

CONCERNING THE PRODUCTION CAPACITIES OF FARM RAISING VARIOUS TYPES OF
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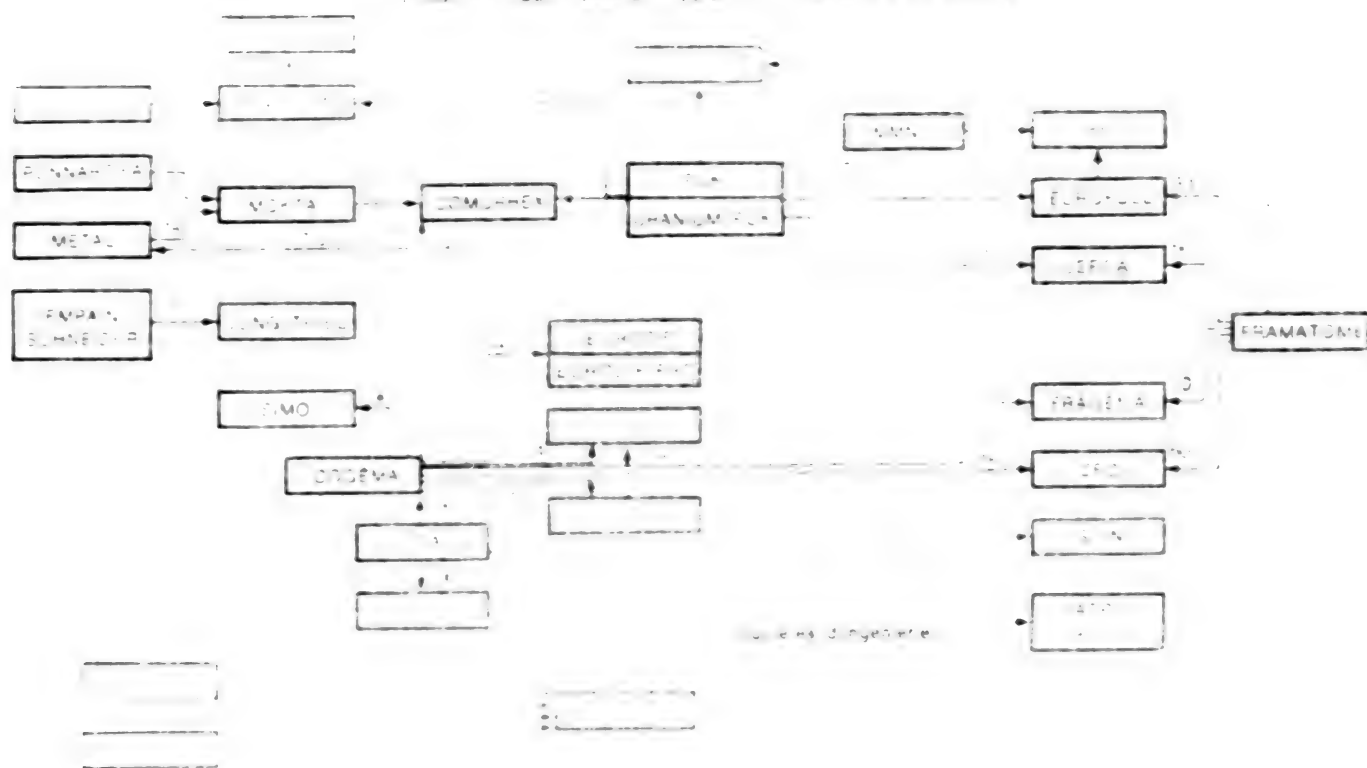
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The VCI powders come from the Cogema reprocessing plants; the VCI powders are the International Atomic Energy.

1970, and the process, compresses that, into the 1980s, breaks the
 1970s, and the final assembly.

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

For the first super-pressure case, a limited portion of the cladding tubes were fabricated in the United States from Carpenter Technology.

1. The design of the factory building is the best adapted production building for the manufacture of the mechanical portion of the automobile in the form of assemblies.

The French, AEA's company for the study and fabrication atomic fuel, has also been working for some ten years past on the fuel assembly structures, and on the design of the reactor control rods.

The following information was obtained from the files of the
Federal Bureau of Investigation at Washington, D.C., and is being furnished
to you for your information.

THE UNIVERSITY OF CHICAGO PRESS

Printed and Published by Vallentyne and Procter.

[illegible]

1. *Journal of Management Studies*, 1996, 33, 1, 1-14.

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

1. The first step in the process of the investigation is to identify the problem. This is done by the investigator who is assigned to the case. The investigator will then gather information about the problem and the people involved. This information will be used to develop a plan of action.

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FRANCE

LA HAGUE PLANT'S EXPANSION: INVESTMENT FOR WASTE TREATMENT

INDUSTRIE GENERALE NUCLEAIRE in French Nov-Dec 82 pp 537-539

English version

Background: The program for reprocessing irradiated fuels is related to the development of nuclear power plants of different types: natural uranium, thermal (UNGG), enriched uranium light water (PWR), and fast neutron reactors.

Reprocessing Projects: UP 2 600, UP 3, STE 3

The program to expand the La Hague plant was taken in order to satisfy the growing reprocessing needs created by the startup of the EDF (Electricite de France) 1,000 MW to 1,200 MW PWR reactors. The two plants that are being developed will treat the tonnage of irradiated fuel produced by the EDF power reactors in the 1980's.

The program consists of three major parts:

1. A completely new installation of 600 t/year capacity for the production of 30 reactors of about 900 MWe. The entire plant will be turned over to Cogema for startup in mid-1987;

2. A project which consists of expanding to 600 t/year the capacity of the present UP 2 plant, by adding a certain number of new reprocessing units. The various units which compose UP 2 will be staggered in time;

3. A project which includes UP 3, combining the general services needed for the reprocessing of irradiated fuels: waste shops, power stations, facilities for the management of waste. The startup of these plant units will be staggered.

1. The first part of the paper discusses the importance of the study of the history of the United States. It is argued that a knowledge of the past is essential for a full understanding of the present and for the development of a sense of national identity.

2. The second part of the paper discusses the role of the federal government in the development of the United States. It is argued that the federal government has played a central role in the development of the country, and that its actions have been crucial to the success of the nation.

3. The third part of the paper discusses the role of the states in the development of the United States. It is argued that the states have played a central role in the development of the country, and that their actions have been crucial to the success of the nation.

4. The fourth part of the paper discusses the role of the people in the development of the United States. It is argued that the people have played a central role in the development of the country, and that their actions have been crucial to the success of the nation.

5. The fifth part of the paper discusses the role of the courts in the development of the United States. It is argued that the courts have played a central role in the development of the country, and that their actions have been crucial to the success of the nation.

6. The sixth part of the paper discusses the role of the military in the development of the United States. It is argued that the military has played a central role in the development of the country, and that its actions have been crucial to the success of the nation.

7. The seventh part of the paper discusses the role of the economy in the development of the United States. It is argued that the economy has played a central role in the development of the country, and that its actions have been crucial to the success of the nation.

8. The eighth part of the paper discusses the role of the culture in the development of the United States. It is argued that the culture has played a central role in the development of the country, and that its actions have been crucial to the success of the nation.

• **Large inventory and supply of various equipment for receiving and storing**
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the 1970s, the construction of two nitrification lines for the plant was completed by combining the ATW unit in Maroule, and other units in the plant are studied for La Hague;

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THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

REPORT OF THE RESEARCH GROUP ON THE CHEMISTRY OF THE CARBON-13 ISOTOPE

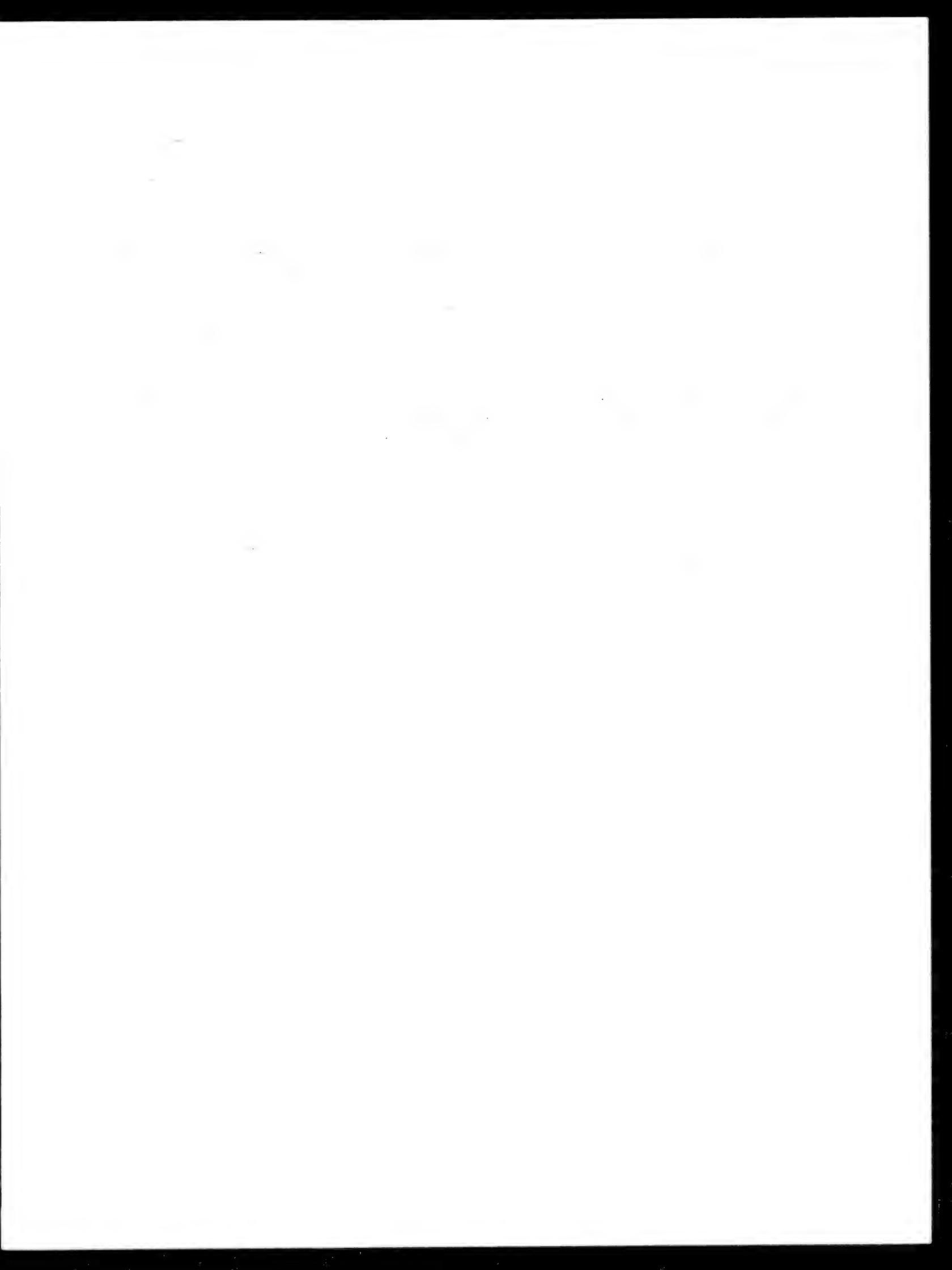
BY J. H. COOPER, JR., AND R. M. COOPER

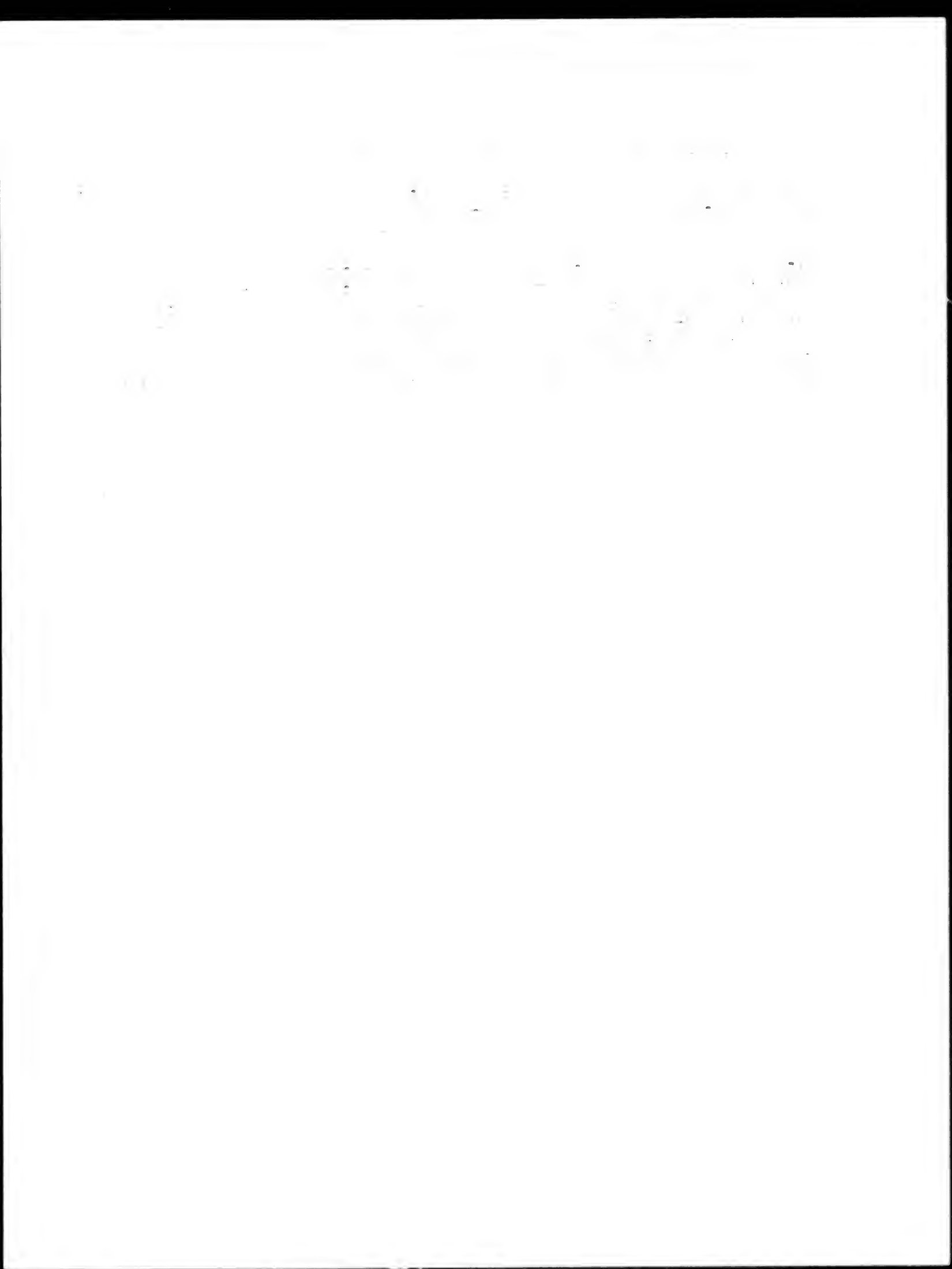
CHICAGO, ILLINOIS

1961

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PROBLEM WITH THE WESTINGHOUSE PLANT TO BE REBUILT

By K. J. JACOBSEN, written in Swedish 12 Feb 83 p. 9

1983 The Swedish Atomic Energy Board (SKI) will permit the State Power Board to rebuild the poorly designed steam generators at Ringhals 4. SKI believes that the proposed design is sound enough to permit the reconstruction of the steam generators at Ringhals 4.

In order to avoid the problem of wear in the steam generators first discovered at Ringhals 3, Westinghouse has designed a new feedwater distributor for the lower section of the steam generators.

The State Power Board has conducted extensive and detailed experiments and analyses with the new design.

Permit to operate Ringhals 4 requires a decision by the SKI Board. This decision will be made at a meeting in late March.

The State Power Board estimates that Ringhals 3, where the problem first was found, will be rebuilt during the summer of 1983.

Ringhals 3 was shut down on 20 October 1981 because of a leaking pipe in a steam generator. It was discovered that the leak occurred when one of the 12,000 pipes in each of the three steam generators was struck by a small object. Thus, water leaked out of the reactor's primary loop into the so-called secondary loop, i.e. into the water loop which drives the turbine. This loop is closed, however, and the leakage of water is replaced by the spread of radioactivity to the secondary loop. It was subsequently found that the damage was due to a reversed flow of water in the secondary loop.

The leak in the steam generator was also found, and the SKI Board has decided to rebuild it.

The SKI Board has also decided to rebuild the feedwater distributor in the steam generators at Ringhals 3, in order to avoid the wear and tear caused by the reversed flow of water in the secondary loop.

NUCLEAR POWER PLANTS EXPECTED TO OPERATE AT LOSS INTO 1990'S

44-41-DAVENS NYHLTER in Swedish 8 Feb 83 p 6

The government is planning to review the applications for permission to build the Barsebäck and Forsmark 3 nuclear power plants under the terms of a new law rather than in accordance with the current Nuclear Safeguards Law.

This was revealed by Minister of Energy Birgitta Dahl during an interpellation debate in Parliament on Monday. She made the announcement after Oswald (Socialist Left Party-Communists) asked whether the government intended to issue the new permits for the two nuclear power plants that will soon be completed.

Oswald asked: "What will happen if the applications are received before the new law is ready?"

Minister Dahl replied: "We are not compelled to use the Nuclear Safeguards law in the case of these applications; our intention is to apply the new legislation that will be ready in 1984."

Oswald (Socialist Left Party) wanted to know what method Minister of Energy would use in calculating the cost of Oskarshamn 3.

Minister Dahl answered: "According to the method whereby capital costs are not adjusted for inflation and are spread evenly over the life of the installation, the cost will be about 6 billion kroner. But she did not want to give a more detailed calculation."

Oswald asked: "Will you say that the total investment cost, including interest, will be more than 6 billion?"

Minister Dahl replied: "It will show a loss far into the 1990's. If Oskarshamn 3 were to be built at Barsebäck, bankruptcy would have been inevitable. For themselves, the power companies, the price of electricity will increase by 25 percent a year."

Minister Dahl added: "Under the special rules for business companies, the first 8 years of production will be tax-free for the first tax year."

the bill: "But such large long-term investments as these can never become profitable in the first few years. It is also expensive, for example, to expand wind electric power, and we accept even higher costs in the case of hydroelectric power. The fact that Forsmark 3 and Oskarshamn 3 were more expensive than expected is due, among other things, to delays caused by the referendum and to stricter safety requirements."

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